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NO EXCUSE FOR DEPRESSION NOW.

FINANCIAL depression will come to a speedy end when the people begin to read the prospectus of the Jean Rubber Co. If it had appeared earlier there would have been no necessity last month for the Bank of England to declare a reduced dividend, giving as a reason the accumulation of \$200,000,000 of idle money in its vaults. Money will not long remain idle anywhere when it becomes known that stock in the Jean Rubber Co. will soon yield returns of "more than 10,000 per centum." THE INDIA RUBBER WORLD felicitates itself upon being first to make public this new opportunity to acquire wealth, but it must be understood that not every one can become a millionaire right away, there being only 50,000 shares of the capital stock for sale. Their face value is \$100, though spot-cash buyers will be accommodated for \$12.50 per share.

The Jean Rubber Co., having acquired title to a concession of 62,500 acres of land in French Guiana, will next proceed to tap the 12,500,000 rubber trees thereon. The tapping is to go on continually, instead of being confined to seasons as in Brazil. Every tapper is to collect 10,000 pounds of rubber per year, at a cost, including delivery at New York, of 10 cents per pound; then the sale of the rubber at 40 cents, will give a yearly profit, on each rubber-gatherer's work, of \$3000. The amount of rubber to be gathered by each man will increase from year to year until it reaches 45,000 pounds, which will yield an annual profit per laborer employed of not less than \$13,500. Not only are the 12,500,000 trees now standing to be utilized, but all the other forest trees are to be cut down and replaced with Pará rubber saplings, which will speedily become productive. The trees already on the ground will yield, at one-half the Jean Rubber Co's estimate, 625,000,000 pounds of rubber per year, or nine times as much as the world's present consumption.

The prospectus of the Jean Rubber Co., duly incorporated under the laws of West Virginia, sets forth in great detail what is to be done with the first money paid in by subscribers to the capital stock. The rubber is to be collected, by the way, by convicts of the colony, to be turned over by the government in consideration of an export duty of 1 cent per pound on the rubber produced. Each convict is to be provided with two *machetes* at 25 cents each to tap trees with; 600 *calabashes* at 5 cents each to catch the sap in; and thirty barrels at 15 cents each to hold the sap in the storehouse. Every ten convicts will have a \$50 hut and every hundred convicts an overseer with a \$250 horse and a \$500 cottage; also a warden, with a \$500 cottage. The convicts will be supplied, also, with rum, brandy, tobacco, cigars, and axes and saws for felling the forest trees other than rubber, the whole cost of which is carefully estimated.

There is no estimate for provisioning man or beast, but it is not strange that this slight detail should have escaped the minds of men promoting a company which threatens to overwhelm its stockholders with wealth. Nor does it appear how crime is to be stimulated in Guiana so as to provide the constantly-growing army of convicts that will be

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needed to tap the trees. As to the disposal of the Balata gum, the variety of rubber most abundant in that colony—but it cannot be expected that everything can be got into one prospectus. We should be content to know that each tree-tapper is to have \$30 worth of *calabashes*.

THE DISTRIBUTION OF POWER IN RUBBER MILLS.

FOR a number of years past the distribution of power through large buildings, factories, etc., by means of electric motors, has occupied the attention of architects, engineers, millwrights and wide-awake manufacturers. Up to the present time no rubber factory has seriously considered this problem. At the same time few use a greater amount of power in proportion to the work produced, than do rubber manufacturers. Further than this, in many cases this power is carried long distances by heavy lines of shafting and by belts. We are aware of the fact that our English cousins find it advantageous to run single calenders by separate engines. We of course do not do this, but it is a question if it would not be wise to have a small motor attached to each calender, so that it should be entirely independent of the main line of shafting, and not only that, but so that its speed could be varied to meet any requirements. Speaking of the general system as applied to almost all lines of manufacture it has the advantage of excessive flexibility allowing each department, or each machine, to be operated independently of all the rest. Further than this it does away with an immense amount of shafting and belting, and has the strong point of bringing the power to the work and not the work to the power. Again there is a notable economy in the cost of installation, as compared with a complete equipment of belting and shafting. The situation and construction of the different buildings of a manufacturing plant equipped with electric power, is also a simple problem, while the most important point of all is that the cost of operation is much less than with other systems. The loss of power in operating shafting and belting in a large mill is frequently from 68 per cent. to 70 per cent. of the total power required to operate the plant. In a well-designed plant, however, with the generator in the engine-room and separate electric motors for each department or for each large machine, and with a proper system of wiring, this great loss can almost entirely be done away with. Further than this, as in all rubber mills the power required is of an intermittent nature, it will be found that a generator twenty-five to forty per cent. less than the total power called for will be amply sufficient for operating the plant, as by means of switches and indicators each motor or set of motors can be operated independently by the operator in charge, who can also tell at a glance how much power is required for each circuit. Again, in dull or in busy seasons any motor or set of motors can be operated separately from the rest, as each motor as well as the generator is perfectly automatic in its regulation and consumes only such power as is required to drive its machinery. When these facts are appreciated by rubber manufacturers

there is no doubt but electricity will be called into use in running departments in rubber mills.

OUR SMALLER IMPORTS OF INDIA-RUBBER.

EVERY month of the present year has shown a smaller importation of crude India-rubber into the United States than the corresponding month in 1893, with the exception of July. The official figures are given herewith, expressing quantities in pounds and excluding the imports of Gutta-percha:

	1893.	1894.
January.....	5,373,190	4,680,683
February.....	5,491,756	3,573,199
March.....	3,545,739	3,492,222
April.....	5,096,708	3,157,236
May.....	2,505,639	2,153,770
June.....	3,129,483	2,208,482
July.....	975,323	1,466,823
Total.....	26,117,838	20,732,415
Exports.....	972,943	1,414,311
Net imports..	25,144,895	19,318,104

The exports of manufactures of India-rubber and Gutta-percha on the other hand, show an improvement this year as compared with last. Fewer boots and shoes have gone out, but there has been a marked increase in other goods. The comparison stands, for seven months of 1893 and 1894, respectively:

	1893.	1894.
Boots and shoes.....	\$145,627	\$98,005
All other.....	699,868	798,633
Total.....	\$845,495	\$896,638

The imports of goods of this class have shown a falling off in value during the present year as compared with the same period in 1893.

ASBESTOS WORKS IN GEORGIA.

AN industry of far-reaching importance has just been inaugurated in Georgia. Near Demorest, in White county, in the midst of extensive asbestos deposits, has been built a plant for preparing the fiber for market. After several years' experimenting to secure proper machinery, the plant is now completed and has commenced operations with a daily output of from twenty-five to thirty tons of finished material. The Sal Mountain Asbestos Co. erected the plant, which, to show the plentiful supply of asbestos, is built on a bed of that article. The outcroppings of asbestos can be seen in large quantities all around the works, and it is estimated that the quantity in sight will keep the plant busy for a long term of years. The fibrous rock is passed through a crusher and afterwards goes through a process of defiberizing, fanning and screening. The success of the enterprise seems already assured, it being demonstrated that a marketable article can be turned out, while the demand on the company already exceeding its production, guarantees profitable sales. H. S. Benjamin is secretary of the company, and T. W. Hix, general manager.—*Baltimore Manufacturers Record*.

THE facts about rubber-manufacture in the reports of the Massachusetts bureau of labor statistics are printed with the idea of not revealing the business of individual companies. But any one who will examine the latest report on manufactures will find that one rubber company reported to the bureau for 1893 the production of goods to the amount of \$6,463,887. Which company was it?

ANOTHER RECLAIMED RUBBER PATENT SUIT.

The Case Against the Raymond Rubber Co.

THE steps in the suit of the Chemical Rubber Co. v. the Raymond Rubber Co. and others,* in the United States circuit court for the district of New Jersey, follow each other as slowly as the proceedings in the case of the same plaintiff against the Goodyear's Metallic Rubber Shoe Co., to which attention has been given in this journal for several months past. In the latter case the bill of complaint and the answer of the defendants were summarized in THE INDIA RUBBER WORLD of October 15, 1893, following which issue of the paper the testimony for the defense has been given in considerable detail. The interest which has been manifested in the publication of this matter has suggested the presentation here of some facts respecting the second suit for alleged infringement of patents brought by the Chemical Rubber Co.

The bill of complaint does not differ materially from that filed against the Goodyear's Metallic Rubber Shoe Co., but the defenses set up against it will be found to contain considerable new matter. Seven different patents were enumerated in the complaint in the former case, but only six of them are embraced in the complaint of infringement brought against the Raymond Co., the numbers being as follows :

No. 292,891, issued February 5, 1884, to Augustus O. Bourn and assigned November 23, 1887, to Augustus O. Bourn, Jr., and by him assigned February 29, 1888, to the Chemical Rubber Co.

No. 300,720, issued June 17, 1884, to N. Chapman Mitchell and assigned February 29, 1888, to the Chemical Rubber Co.

No. 249,970, issued November 22, 1881, to N. Chapman Mitchell and assigned February 29, 1888, to the Chemical Rubber Co.

No. 250,943, issued December 13, 1881, to N. Chapman Mitchell and assigned February 29, 1888, to the Chemical Rubber Co.

No. 311,135, issued January 20, 1885, to Charles J. McDermott, he having previously (December 30, 1884) assigned his interest in the invention to the New York Belting and Packing Co.

No. 262,079, issued August 1, 1882, to Charles J. McDermott, he having previously (June 20, 1882) assigned his interest in the invention to the New York Belting and Packing Co. These two latter patents were assigned February 29, 1888, to the Chemical Rubber Co.

The complainant alleges the infringement of their rights sought to be protected by these patents and prays for an injunction against further infringement and for a decree for the amount of the profits enjoyed by the defendants through their alleged use of the patented processes.

In their answer the defendants allege that they do not know, save through the bill of complaint, that the Chemical Rubber Co. is a corporation under the laws of the state of New York. They admit the issue of letters patent by the United States government under the numbers and to the persons named by the plaintiff, but as to the various alleged assignments by which it is claimed that the title to the patents was vested in the plaintiff, they claim to have no knowledge save through the bill of complaint ; further, they deny that the said alleged assignments are valid to

vest the title to the patents in the plaintiff so fully as to entitle the plaintiff to bring this action.

They deny, on information and belief, that Augustus O. Bourn was the original and first inventor of the alleged improvement in the process of treating fibrous rubber described in letters patent No. 292,891, granted to him February 5, 1884 ; they deny that the same process was not known or used by others within the United States prior to the alleged invention by the said Bourn ; they deny that the invention had not been in public use or on sale in the United States for more than two years prior to the application of Bourn for letters patent thereon ; and they deny that in the application for said letters patent the proceedings were had in all respects according to the requirements of the law.

The defendants make denial, in like manner and form, with respect to each of the five other patents enumerated in the bill of complaint.

Further answering on information and belief, the defendants deny that the plaintiff or those from whom it derives title to the several patents have extensively applied the alleged inventions to practical use, or have invested large sums of money in the development of said inventions, or have made any profit by reason of their exclusive ownership of said patents ; and they further deny that the alleged exclusive rights claimed by the plaintiff under these patents have been at any time respected or regarded by the public. They further deny that they have conjointly used the said several inventions described in the patents covered by the bill of complaint, or that they have infringed upon any valid rights secured to the plaintiff by them ; they deny that the process of treating rubber waste used by them embodies any of the alleged inventions ; and the defendants other than the Raymond Rubber Co. deny that they have used any process for recovering or treating rubber other than as officers of the Raymond Rubber Co.

The defendants further say, on information and belief, that the letters patent No. 292,891 do not describe anything which, in view of the state of the art at or prior to the date of the alleged invention thereof by Augustus O. Bourn, constitutes patentable subject-matter under the laws of the United States, wherefore, they say, said letters patent are null and void. The specification of the alleged invention patented in the said patent, they say, "is ambiguous and incomplete and does not describe and show the method of carrying out the alleged patented invention in such full, clear, and exact terms as to enable any person skilled in the art to which said invention appertains to use the same ; and that for the purpose of deceiving the public the description and specification of the said letters patent were made to contain less than the whole truth relative to the pretended invention of Augustus O. Bourn and also more than is necessary to produce the desired

* George Agnew, Charles H. Blackwell, and J. G. Agnew, officers of the Raymond Rubber Co., are made defendants in this suit.

effect." Further, it is claimed that the specifications in said patent failed to point out the alleged invention in such exact terms as to enable one skilled in the art to distinguish the same from what was known and practiced prior to the invention of Bourn, "wherefore the said letters patent were and are null and void." The defendants similarly make denial, on all points embraced in this paragraph, with reference to patents No. 300,720, No. 249,970, No. 250,943, No. 311,135, and No. 262,079, and to the alleged inventions sought to be protected by these patents.

With respect to each of the six patents named in the bill of complaint, the defendants say, on information and belief, that the plaintiff is not entitled to any relief for the reason that the alleged invention or discovery—or material parts thereof—had been, prior to the issue of any and all of the said patents, made known in divers other letters patent, as follows:

[*In the United States.*] No. 19,172, issued to Hiram L. Hall, January 19, 1858, for an improvement in restoring waste vulcanized rubber.

No. 22,217, issued to Hiram L. Hall, November 30, 1858, for the same.

No. 40,217, issued to Charles H. and Daniel E. Hayward, October 27, 1863, for an improvement in treating waste rubber.

No. 23,805, issued to Francis Buschnagel, April 26, 1859, for improvement in restoring waste rubber.

No. 27,837, issued to C. F. Edward Simon, April 10, 1860, for improvement in restoring waste vulcanized rubber.

No. 29,717, issued to Albert C. Richard, August 21, 1860, for improvement in devulcanizing waste rubber.

No. 114,576, issued to William Newton MacCartney, April 27, 1871, for regluing rubber.

No. 233,600, issued to John H. Cheever, October 26, 1880, for process of reclaiming rubber from old and waste vulcanized rubber and utilizing the same in manufacturing rubber goods.

No. 236,778, issued to Henry A. Clark, January 18, 1881, for process of desulphurizing and devulcanizing waste vulcanized India-rubber.

[*In Great Britain.*] No. 2495, July 12, 1875, issued to Christian Heinzerling and Henry Liepman, for an improvement in the recovery and utilization of refuse Caoutchouc and Gutta-percha.

No. 448, ——— 1863, issued to Charles H. and Daniel E. Hayward for an improvement in treating waste rubber.

[*In France.*] No. 665, April 3, 1871, to A. M. Faure.

The defendants say, on information and belief, that the alleged inventions described in the various letters patent claimed by the plaintiff—or a material part thereof—had been, before the granting of said patents, in use by

Henry A. Clark, in Boston; Marc W. Beylikgy, at Tenafly, N. J.; John H. Cheever, in New York city; John Cinnamon, at Cincinnati; Adolph Woolner, at Louisville, Ky.; Hiram L. Hall and the Beverly Rubber Co., at Beverly, Mass.; John L. Chadwick, at Belleville, N. J.; William H. Liman, at Tottenville, N. Y.; the New York Belting and Packing Co., at Newtown, Conn.; Charles H. Hayward, at Stoneham, Mass.; Daniel E. Hayward, at Melrose, Mass.; Emanuel Guggenheimer, Charles J. McDermott, N. Chapman Mitchell, and Henry Loring, at Philadelphia; and Augustus O. Bourn, at Bristol, R. I.*

With reference to patent No. 311,135, the defendants allege, on information and belief, that it was null and void because it was surreptitiously and unjustly obtained by Charles J. McDermott for that which was invented by Emanuel Guggenheimer, of Philadelphia, who was diligent in adapting and perfecting the said invention to practical use, which he did successfully and on a large scale. They further say that this patent is null and void because Charles J. McDermott had, prior to the issue of the patent, abandoned to the public the invention therein claimed by fully describing the said invention in a certain prior patent [No. 262,079] obtained by him on August 1, 1882, without notice to the public that he claimed the same as his invention and had solicited a patent therefor.

Finally, the defendants allege, on information and belief, as to the patents No. 300,720, No. 249,970, and No. 250,943, granted to N. Chapman Mitchell, that it is untrue as set forth in the bill of complaint that these patents were each granted for the term of seventeen years from their several dates of issue; on the contrary, it is alleged that the inventions described were all patented by the said Mitchell in Great Britain prior to the grant of any of American patents relating to said inventions; wherefore the terms of these patents, under the laws of Congress, will expire with the said British letters patent, to wit, at the expiration of fourteen years from November 17, 1881.

This answer is signed by W. M. Lanning, solicitor of the defendants, at Trenton, N. J., and dated September 2, 1891. Much testimony has been taken in the case, of which a *résumé* may be expected in these pages.

*In an amendment to the answer of the defendants the Hayward Rubber Co., at Colchester, Conn., are mentioned as having used the processes above referred to.

THE INDIA-RUBBER FACTORIES OF RUSSIA.

THOSE visitors to the World's Fair last year who went to Chicago uninformed with regard to the progress which has been made in this century in Russia must have found much to surprise them in the extensive displays made by Russian factories. To such persons probably no department offered a greater surprise than was afforded by the high-class India-rubber goods shown by a St. Petersburg firm which owns one of the largest rubber mills in the world.

The manufacture of India-rubber goods was begun in Russia soon after 1830. The first factory was opened in St. Petersburg by Henry Kirstein. By 1844 there were

two factories, the united product of which, in 1845, reached the value of 90,000 roubles, and, in 1849, the value of 132,000 roubles. Three years later there were four factories, but in 1853 all of them closed but that of Kirstein. At this stage of the industry the products were of a low grade, but by no means low in price. The government recognized the importance of the industry, however, and in 1857 the import duties were raised on manufactures of India-rubber and Gutta percha. In 1860 there were five rubber-mills, employing 298 hands, and producing goods valued at 412,000 roubles.

In the latter year the Russian-American India-Rubber

Manufacturing Co. was established in St. Petersburg. The rubber shoes which it made speedily found favor, and an export trade was started, in spite of the growing home consumption of these articles. In time Kirstein's factory was merged into that of the Russian-American company, which became so strong that it easily swallowed up the various smaller mills that were started from time to time. The increase in the production of rubber shoes is thus shown by some figures compiled from a work on "The Industries of Russia," translated into English by Mr. John Martin Crawford:

	Pairs.
In 1860-61.....	220,223
In 1870-71.....	1,804,634
In 1880-81.....	2,313,378
In 1886-87 ..	3,300,000

While these figures are not large as compared with the product of the dozen or more large rubber-shoe factories of the United States, they are important as showing a steady rate of increase. The progress of the export trade in rubber-shoes has been equally great. The number of pairs sold to Sweden and Norway alone in 1886-87 was some 400,000, and 150,000 pairs were shipped to other countries. As for the United States, while 1891-92 was considered a good year for the rubber trade, only 231,105 pairs of rubber shoes were exported from this country in that year to all the rest of the world.

The rubber industry in Russia is not confined, however, to shoes. In recent years, too, it has been extended by the erection of several other establishments, concerning which

some details of which, condensed from the work already referred to, may be of interest to readers outside of Russia.

The Russian-American factory—which made such an interesting exhibit at Chicago—was established with a capital of 500,000 roubles. In 1892 its working and reserve capitals amounted to 6,000,000 roubles, and it had a capacity for a production of 10,000,000 roubles per year. The plant includes 22 steam-boilers, 25 steam-engines of 2120 aggregate horse-power, and 380 rolling, washing, and other machines. There are 2873 hands employed, of whom 1387 are women. The product embraces rubber goods of all kinds, but the manufacture of shoes is very large, it being stated that the export of these has now reached 1,000,000 pairs a year.

In the government of Livonia there are two rubber-mills, using 650 horse-power of steam, employing 510 men and producing goods to the value of 645,000 roubles. Mündel's works, in Riga, making shoes, surgical appliances, etc., employ 101 men and produce 200,000 roubles worth of goods. This establishment dates from 1864. The Moscow India Rubber Co., established in 1888, have engines of 250 horse-power, employ 370 hands, and report a yearly production of 1,000,000 roubles. In Poland two small mills have a united production of 258,000 roubles and employ 180 men.

The rapid progress achieved by the Russian India-rubber trade conveys the idea that the importation of rubber goods should be steadily declining, and statistics prove this to be the case.

THE MASSACHUSETTS RUBBER INDUSTRY.

THE India-rubber industry in Massachusetts seems to have been less seriously affected by the general depression of 1893 than the average of manufacturing industries in that state. In the annual reports on "Statistics of Manufactures" in Massachusetts are compiled returns from a large number of establishments in the leading industries (the same ones reporting year after year), by comparison of which conclusions are reached respecting industrial conditions in the state. The eighth volume, lately issued, contains comparative returns for 1892 and 1893 from 4397 establishments, in seventy-five industries, "rubber and elastic goods" being represented by 34. The importance of the 4397 typical establishments reporting is shown by their having made more goods in 1892 than were made in 1885 by the 19,072 establishments (large and small) covered by the state census of that year.

Following is the result of comparing certain points in relation to rubber-manufacture in Massachusetts for 1893 with the returns for 1892, while another column shows the result of similar comparisons for the seventy-five industries as a whole:

	Rubber Goods.	All Industries.
Value of stock used.....	Increase, 0.94%.	Decrease, 7.32%.
Value of goods made.....	Increase, 1.83%.	Decrease, 8.10%.
Average number of employes.	Increase, 2.33%.	Decrease, 4.26%.

Total paid in wages.....	Increase, 12.67%.	Decrease, 7.75%.
Average yearly earnings.....	Increase, 10.11%.	Decrease, 3.64%.
Average days in operation...	Increase, 1.21%.	Decrease, 6.87%.

The returns in detail with regard to the 34 rubber-factories are given as follows, the identity of the various establishments being carefully guarded by the statistical office:

	1892	1893.
Number of private firms.....	18	18
Number of partners.....	31	32
Number of corporations.....	16	16
Number of stockholders.....	689	769
Aggregate of partners and stockholders..	720	801
Amount of capital.....	\$10,344,439	\$11,148,812
Value of stock used.....	\$ 9,824,076	\$ 9,916,476
Value of goods made.....	\$14,244,814	\$14,506,016
Average number of persons employed..	6,021	6,161
Total amount paid in wages.....	\$ 2,535,224	\$ 2,856,355
Average yearly earnings.....	\$421.06	\$463.62
Proportion of business done (compared with total capacity).....	74.59	65.74
Average number of days in operation,	281.15	284.55

These figures are designed merely for comparison; and not as a complete record of Massachusetts industries. There is reason to believe, for instance, that one or more of the largest rubber concerns in the state are not included in these returns. But experience has shown the value of

the figures from this office for the purpose for which they are intended. By whatever test may be applied the comparison with other industries will be found a favorable one for India-rubber. Of the seventy-five different industries referred to, only in four has there been an unbroken record of increase in value of goods made, year by year, since the collection of these returns was begun. Of these four, India-rubber is by far the most important in extent. What is more, while these reports exclude all consideration of profits, there is reason to believe that the rubber industry in Massachusetts has been a paying one in every year.

It can hardly be that these favorable results have been purely a matter of chance. There is inherent in the manufacture of rubber goods nothing to insure growth of the

business while other industries receive a check. Rubber goods have become necessities of life in modern times, and are in constantly growing demand, but not more so than the textile and leather goods produced in Massachusetts on so gigantic a scale. Doubtless some of the elements of continued success will be found in the fact that the rubber-manufacture is compactly organized under conditions which secure for it the individual attention of a few men long familiar with the business who have built up the industry to its present proportions. Adhering to conservative methods, guarding against overproduction, and dealing with their employes on a basis which enlists their interest and discourages strikes, the Massachusetts rubber-manufacturers have founded a business of which they may well be proud and which is a credit to the whole country.

A HISTORY OF SEAMLESS COTTON HOSE.

By Cornelius Callahan.

IT was in New York city in 1871 that I began the manufacture of woolen fabrics upon machinery designed by myself. This was in a basement in Clinton place, the power being a foot-lathe and the work being largely experimental. Later I was induced to join issues with parties in Chelsea, Mass., who were to manufacture woolen goods knit in tubular form. After a great deal of study and experimentation I was able to make a machine that accomplished the results looked for, and immediately built a model to accompany my application for letters patent. When the model was completed I desired to test it but having no woolen yarn of the size necessary, used cotton as an experiment. The fabric thus produced was tubular and about two inches in diameter. On examining it the idea occurred to me that it might be used for fire hose, if only it could be made water-tight. Following the idea further I persuaded one of my associates to visit the plant of a mechanical rubber factory and show them a piece of the fabric, and ascertain if it were possible to line it with rubber. This was done by the Boston Belting Co. who succeeded in putting a rubber lining in the eighteen inch sample. The next problem that confronted me was to make the fabric strong enough to withstand a water pressure of 300 pounds. To secure this I adjusted the model machine to knit an outer jacket of the same cotton, which was drawn over the first piece, thus producing what has since been known as double or jacket cotton hose. Now satisfied that I had invented a fire hose that could be put on the market and that should have points of excellence that were far superior to the hose then in use, I began to manufacture. At first there were many objections to it, the most common being that it would soon get dirty and black from service. That however, was easily met by the suggestion that at no time could it ever become as black as rubber hose, nor as dirty and objectionable as leather, —furthermore that it could be easily washed and dried. The first order ever given for seamless cotton fire hose was given to me by the fire department of Chelsea, Mass.,

in December, 1883, for 600 feet of 2½ inch hose at \$1.20 a foot, with couplings attached. In order to fill this contract I built a knitting machine to make it. It took some time to get this machine perfected and in running order, and it was some three months before the order was filled. In the meantime the personnel of the Fire Department Commission which placed the order had changed, which caused the removal of the fire engineers, and their successors refused to accept anything ordered by the first board. The hose was delivered however and lay in the fire department headquarters waiting a later decision. While there it happened that one Sunday morning a fire broke out in a stable in Chelsea in the immediate vicinity of the factory, the fire department responding with its usual promptness. In the attempt to subdue the flames there were fifteen lengths of rubber and leather hose burst. Among the interested spectators were many representative citizens including some of the new commissioners. The owners of the stable and adjoining property seeing the fire rapidly getting beyond the department (largely because of the trouble with the hose) demanded that the new cotton hose be put into service. The commissioners, however, asserted that the new hose was no good, and offered to bet that it could not perform fire service. Thereupon I put up \$500 on even money that the city of Chelsea did not possess a fire engine that could possibly burst my cotton hose, but found no takers. After the fire had consumed the whole stable the citizens again demanded that the 600 feet of cotton hose be brought down into that neighborhood, and there and then tested under the guarantee offered. After considerable wrangling it was brought down and connected with the steam-engine. Everything was resorted to that the ingenuity of the engineer could think of in the endeavor to burst the hose. The 600 feet was laid out with a play pipe and a cut-off closed tight, and the engine was run up to its full capacity of 350 pounds pressure frequently, and after repeated failures to even start the hose the engineer, afraid

of breaking the engine, refused to run it any longer. It is perhaps needless to say that the city of Chelsea accepted that 600 feet of hose.

Following this proof of its reliability I sold hose in several other cities in New England and began to believe that my business was fairly established, when I was suddenly confronted with a point hitherto unthought of. The rubber lining in several instances was found to possess faults—after lying rolled up on the reel for a long time in some cases the lining stuck and literally ran together. This of course was due to its being under cured, while in other cases the lining cracked owing to the fault of being over cured, and thus the hose blew and leaked. Then, too, there were occasional pin holes found in the lining, and all these faults, while traceable directly to the rubber, condemned the hose. I therefore, with the assistance of rubber manufacturers, turned my attention to perfecting a fire hose lining. During these early days of cotton fire hose anything capable of standing 300 pounds pressure was considered good enough. In 1875, however, at the annual convention of the National Association of Fire Engineers held in New York, I met with the first evidence of competition in seamless cotton hose. This was a woven hose which was strongly recommended and said to be capable of standing 450 pounds pressure. On my return to Chelsea I determined to see what could be done in further strengthening my hose, and as a result of hard work, in 1876 I had invented and built greatly improved knitting looms, the products of which, made up in double or jacket nose, I had tested in the Charlestown navy yard under the supervision of the engineers of the United States navy. This hose burst at the phenomenal pressure of 1180 pounds with but a nominal elongation and expansion. From this time on orders in some districts came in to me comparatively easily, but distant points were still suspicious of cotton hose. My business, however, continued to increase until 1880, when it was incorporated under the title of American Fire Hose Co., with headquarters in Chelsea.

In 1881 the New York Belting and Packing Co. brought against me an action for alleged infringement in patents, asking the court to issue an injunction restraining me from manufacturing and selling seamless cotton hose. After two years' litigation, during which the best legal talent was employed by both parties, the suit was decided in favor of the American Fire Hose Co. In 1882, after ten years hard work at this business, I visited California for a two months' vacation, and on my return found that my associates in the American Fire Hose Co. had a feeling that I was not a necessity to the success of their business. In August, 1885, I therefore resigned, and the following month began in Boston the manufacture of my patented fire supply specialties, many of which are known the world over. In 1887 I established the Cornelius Callahan Co., in which connection as superintendent and treasurer I continued to study the business and make improvements in knitting looms, brass goods, etc. I remained with this concern until November, 1891, when I sold my holdings to other members of the company. Very soon after the busi-

ness of the Cornelius Callahan Co. was begun in Boston the American Fire Hose Co. brought suit for alleged infringement of patents, with the result that they were forced to withdraw the suit, and defraying all costs, after the case had been before the court for five or six months. After the sale of the Cornelius Callahan Co., my health being much impaired, I took a trip to Florida. On my return from the South I was persuaded by many of my old-time customers to again go into the line of manufacturing hose and fire department supplies, and I therefore purchased land at Canton Junction, Mass., and erected a factory, at once beginning the manufacture of hose with new and improved type of loom, invented and built by myself. I also took out numbers of patents on improved shut-off pipes, relief-valves, etc., etc. I think, without boasting, I can say that I have not only been the father of the cotton fire hose business, but that my jacket and heavy single fire hose have defeated in open competitive tests nearly all competitors for elongation, expansion and bursting pressure.

Before closing I want to say a brief word about a rubber concern that has most effectively helped me in my work, and that is the New Jersey Car Spring and Rubber Co., Jersey City, N. J., who have taken infinite pains in getting a rubber lining that exactly suited my goods. So successful have they been with it that, without exception in an experience of twenty years, not one case has occurred where the lining furnished by them has ever run or cracked.

MORE ABOUT TAN-COLORED RUBBERS.

A GOOD many attempts at different times have been made to produce a rubber shoe to match russet leather, but it seems to have been reserved for the New Brunswick Rubber Co. (New Brunswick, N. J.), to bring out a shoe which appears to be perfection in this direction. The color is a complete match for the darker shades of russet goods. One of the difficulties which rubber men have had to contend with in trying to make russet-colored rubbers has been to secure a proper gloss, such as all black rubbers possess. This difficulty, William Sanford, treasurer of the company, tells us, has been completely overcome by the New Brunswick Co. Mr. Sanford assured the writer that so far as the goods had been shown, they had been favorably received—even enthusiastically in some cases. It is believed that the New Brunswick Rubber Co. has produced a novelty in the way of rubbers which will have a large sale.—*Boot and Shoe Recorder*.

[It may be that Mr. Sanford has produced a different tan shoe from any other in the market, but we cannot help recalling some very handsome goods in this line made by the India Rubber Glove Co., and wondering if the New Brunswick goods have been compared with them. As a matter of fact, the glove company ought to make as good if not better tan shoes than anyone else in the shoe business. They have for years made tan gloves, and, to the writer's personal knowledge, Superintendent Schaeffer has experimented with about every color capable of producing a shade of tan that the earth affords. At the same time, far be it from us to claim that Mr. Sanford has not got what he claims. He usually knows whereof he speaks.—THE EDITOR.]

THE RUBBER TRADERS OF THE UCAYALI VALLEY.

By José de la Sanchez.

THE rubber-forests of Peru are not more remote from the great commercial centers to-day, considering modern progress in transportation facilities, than were the lands washed by the upper Mississippi and its

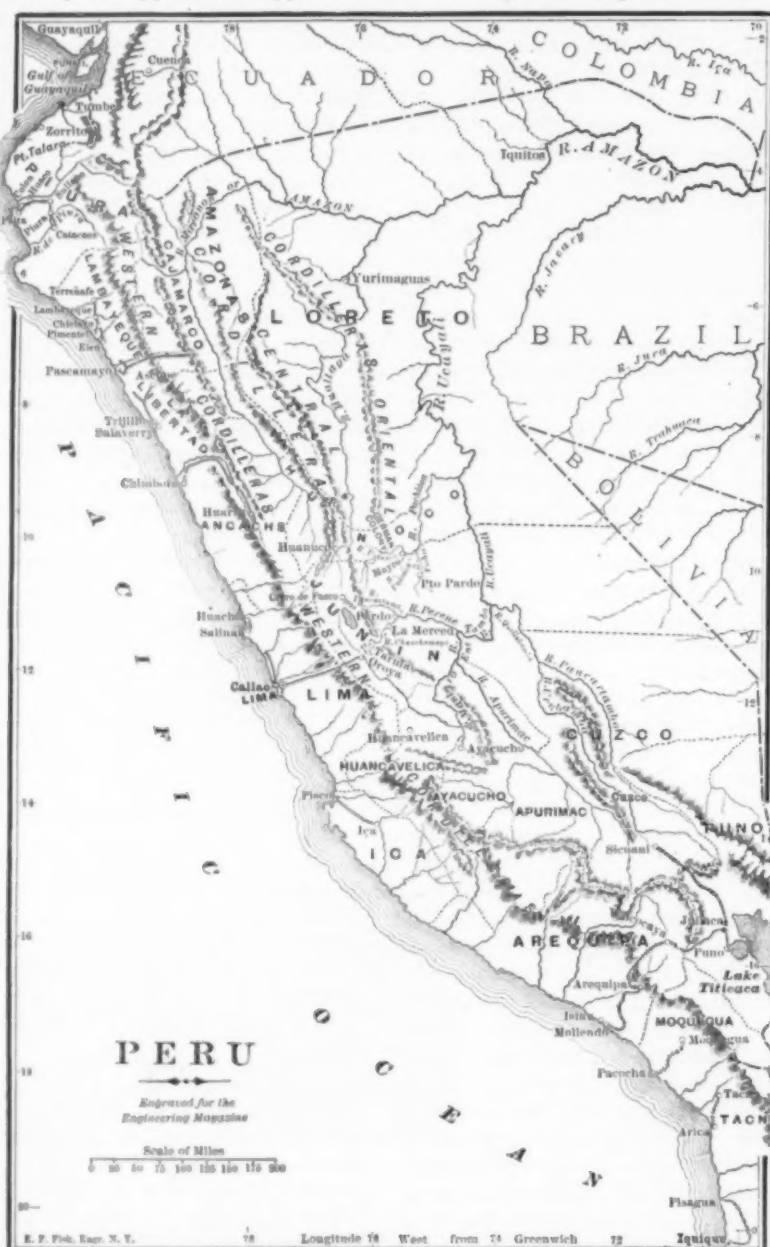
western tributaries within the memory of many persons now living. A casual glance at the ordinary maps of Peru might suggest that no part of the world was less accessible than the interior districts of that country. But intrepid explorers have established the fact that the water-courses there, so carelessly depicted on the school-book maps, form an extensive system of navigable streams discharging through the Amazon into the Atlantic ocean, and thence coming in touch with the great transportation systems of the world. The further fact having been established of the prevalence along these streams of rubber-bearing trees of the genus *Hevea*,—the product of which is the most valuable freight in the world, barring the precious metals,—it has remained only for men of enterprise and capital to locate in this field and avail themselves of nature's great opportunities. The fact is that many individuals of this class are already engaged in rubber-gathering in Peru, and that marked success has attended the efforts

of some, although their distance from any great trade center may have kept the world in ignorance of their existence.

Already steamship lines are in existence by which

freight may be billed from New York or the great European seaports direct to the Peruvian city of Iquitos, far up on the Amazon, and exports from that far-away port are dispatched regularly for North America and the transatlantic markets. But Iquitos is by no means at the head of steam navigation. A little farther up is encountered the great Peruvian tributary to the Amazon, the river Ucayali. It is safer not to quote the accounts of this river coolly stated by Peruvian writers, lest they should seem to some readers to savor of exaggeration. But those who know of the Amazonian tributaries nearer the seaboard,—the Purús and the Madeira, with their enormous annual out-put of India-rubber and other valuable freight,—need not be surprised to learn that other important streams flow

into the Amazon to the westward of Brazil, and that their long banks afford equally valuable commodities of trade which need only the same efforts at development that have been put forward farther down stream to give employment



to new lines of first-class steamers. The navigable length of the Ucayali may be judged, by reference to the accompanying map of Peru, especially when it is stated that already respectable centers of trade exist at the junction of the Perene with the Ene to form the Tambo, which in turn empties into the Ucayali. Here Messrs. Cordosa & Co. are established in the India-rubber trade, having some



CROSSING THE PAUCARTAMBO ON THE TELEFORD, 1893.
[A new suspension bridge of 260 feet span now stands here.]

thousands of Piros and Conibos indians collecting the gum for their trade. This firm own some small steamers which run up-stream some 900 miles to Iquitos, the trip usually occupying twenty or thirty days. Their business is under the direction of an Irish gentleman named Fitzgerald, though in this Spanish-speaking country he is called Fiscarral.

Nearer the mouth of the Ucayali is its important tributary, the Pachitea, into which empties the rivers Mayro and Pozuzo. In this section is the shipping port of Port Mayro, near which is established the German colony of Pozuzo, one of the earliest and most successful examples of colonization in Peru. These settlers long suffered from the want of good transportation facilities, but their prospects have brightened with the opening of the Central railway from Lima, on the Pacific, to Oroya, in the interior, which has been reached by the wonderful engineering feats shown in tunneling the Andes. But what doubtless will prove better for this colony is the liberality of the Peruvian government as shown in guaranteeing the cost of excellent roads to connect the colony with the river systems already referred to. Prominent among the rubber factors in this section is Herr Carlos Ganz, a colonist and trader living at the mouth of the river Mayro. The road which the government has cleared from the river Perene to Port Pardo, on the river Pichis (all shown on the map herewith), is ninety-seven miles long. It is being strengthened for heavy traffic, with bridges across the numerous streams which it crosses. Herr Ganz has gathered around him some fifty families

of the Campas indians, who render good service as canoe-men and rubber-collectors. The same gentleman has done much in other directions for the development of the colony. For example his place is well stocked with cattle brought to it when calves, on men's backs, through the forest.

Señor Mezia has established himself in the rubber-gathering industry on the river Palcazu, which is another tributary of the Ucayali, draining the section in which some important colonization work has been done under the auspices of the great Peruvian Corporation. In addition to these firms, already mentioned in the pages of THE INDIA RUBBER WORLD by Mr. H. Guillaume, the Peruvian consul-general at Southampton, England, may be mentioned the names of Messrs. Baez, Aladin, Vargas, and Garcia, who have established themselves in the rubber business on the western bank of the Pachitea.

Following the Ucayali valley toward the south, and through the various streams which unite to give it volume and force, the traveler comes into the vicinity of Cuzco, the ancient capital of Peru, which in recent years has become the center of an important center of rubber trade. Some details of this trade, in the hands of enterprising German merchants, were given in THE INDIA RUBBER WORLD of June 15 (page 88). The output of this section does not, of course, reach a market through the Ucayali and the Amazon, but is conveyed to the Pacific by means of improved country roads and the railways shown on our map, trains now being run as far toward Cuzco as Sicuani. This rubber section deserves mention, however, as indicating the wide rubber-producing belt which stretches from the mouth of the Ucayali to the head-



A STREET SCENE IN IQUITOS.

waters of the least of its tributaries. By the way, the same German merchants have extended their enterprise up the banks of the river Paucartambo, the waters of which, as the map shows, finally reach the Ucayali.

There must not be forgotten, in discussing the rubber trade of the Ucayali valley, the Iquitos merchant mentioned by Major Kerbey in one of the letters written to

THE INDIA RUBBER WORLD during his trip up the Amazon in 1892,—Don Carlos Moreilles, a French gentleman who for twenty-two years has been established in the rubber trade in Peru. He has proved eminently successful, having connections for the sale of rubber in Pará, in France, and in the United States. In the northern part of Peru Messrs. Linares & Co. have for some time plied the rivers Morona and Pantasa (not shown on the map) with a fleet of small steamers, with satisfactory profits. Mr. Guillaume has also mentioned Don José de la C. Vasquez, who carries on a trade in rubber with the indians on the rivers Santiago, Njeva, and Potro.

The same conditions which prevail on the Ucayali are also to be met with on the river Huallaga, which flows into the Amazon west of the Ucayali, and is also the source of considerable supplies of India-rubber, which is in part carried to market by launches and small steamers, in addition to the innumerable canoes of the indians. There is not room here for mentions of important rubber traders on the Beni, Mamoré, Madre de Dios, and the Orton, all of which, while not Peruvian rivers in the sense in which the Ucayali and Huallaga are, yet afford an outlet for more or less rubber from the eastern Peruvian provinces. In conclusion, it is worthy of mention that none of the rubber merchants mentioned in this article are natives of the country. The special interest in this fact to North Americans lies in the fact that, if the Germans have proved so successful in this until now little-known country, no inherent reason exists why our own people might not, with proper effort, emulate their example.

There is as yet, however, no direct communication between New York and Liverpool and Amazonian Peru. There are shipping agents in New York who bill freight direct to Iquitos, but it is transshipped at Pará or Manáos, generally to steamers of the Amazon Steamship Navigation Co., Limited. No freight is billed to points beyond Iquitos, another transshipment being necessary at that point. From New York the shipments to eastern Peru are mainly flour and kerosene. The finer manufactured goods sent to that part of the world are supplied by England. As for the rubber shipped from Peru down the Amazon, its identity is apt to be lost through being re-handled at Manáos or Pará.

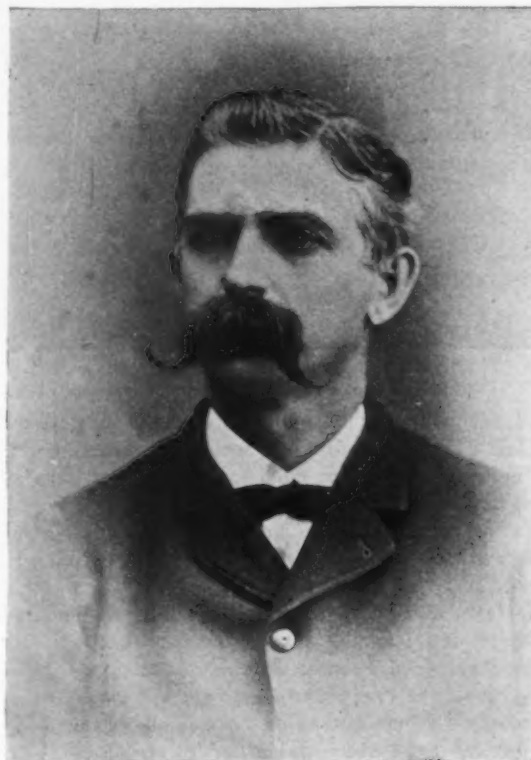
"GOVERNOR HICKS" WOULD SOUND WELL.

IN a review of politics in Tolland county, Conn., the New York Times finds occasion for mentioning a prominent rubber-manufacturer, as follows: "Since it has been spread abroad that E. C. Benedict will not accept the nomination for governor, the name of Ratcliffe Hicks has been mentioned for the place. Mr. Hicks is a Tolland man and was the representative of the town in the last legislature. He is very popular throughout the state, is widely known, and has great political strength. He is president of the Canfield Rubber Co. and is possessed of considerable wealth."

"I would not live away," he sang
The notes he loved to frame;
But he wore a chest-protector and
His gum shoes just the same.—*Washington Star.*

CORNELIUS CALLAHAN.

CORNELIUS CALLAHAN was born in Ireland, 1838. At the age of five years his parents came to the United States, settling in Canton, Mass. At the age of twelve years he began to earn his own living, working for the Revere Copper Company. He remained with that company for five years, after which he served seven years at the machinist's trade. Next he built steam-engines for some time, and finally began developing and manufacturing specialties in fire department supplies. His inventions run into hundreds, and up to date he has been granted



eighty-five patents. Many of these are among the most famous of fire department appliances, and have for years been in general use. Mr. Callahan is without doubt a natural mechanical genius. When he wants a new machine he designs it, builds his model, and oftentimes the machine also, himself. In judging the merits of his own inventions he is very conservative, and is his own severest critic. He is a hard worker, is scrupulously careful and honorable in all his dealings, and his fame as an inventor of useful fire appliances, is sounded in fire departments all over the United States.

PRESIDENT WATKINSON, of the Colchester Rubber Co., was the subject of the following conversation between two of his men.

FIRST WORKMAN—No matter how big the job, Mr. Watkinson wants it done to-day.

SECOND WORKMAN—To-day is it? Sure he can't wait for to-day. He wants it done yesterday.

THE RUBBER PRODUCT OF BRITISH INDIA.

[*Ficus Elastica.*]

A STUDY of the world's consumption of India-rubber at once reveals the fact that the total amount far exceeds the production of which any trustworthy statistics are available. It is known to a certainty how much rubber is discharged from the Amazon valley, from the Pará custom-house records of the past fifty-five years, and several rubber-producing countries besides Brazil maintain financial and revenue systems which permit a correct idea to be formed of the extent of their commerce. The African continent, on the other hand, though bordered on every side with outlets for crude rubber which finds its way to the factories of every consuming country, has no such organized national life as would permit of any sort of statistical methods for the recording of exports. While the extent of the rubber production of India is less involved in obscurity, it is doubtful whether the greater number of rubber manufacturers have ever had laid before them any authentic figures showing how much of their raw material comes from the part of the world in question.

When even the limits of India are difficult to define, it is not surprising that vast sections of the country have not been surveyed, and that our knowledge of the character or extent of its products leaves much yet to be learned. The existence of India-rubber in Asia has been known since 1798, but its appearance as an article of commerce was not until comparatively recent times. It is now exported from Assam, Burma, Borneo, Ceylon, Java, Sumatra, and the Malay archipelago. The most important sources of supply, however, are the British provinces of Assam and Burma, which lie respectively north and east of the bay of Bengal. The Assam product is shipped chiefly from Calcutta and that of Burma from Rangoon. The exports of rubber from these two provinces for several years past is officially reported as follows:

YEAR.	Assam.	Burma.	Totals.
In 1887-88.....	700,112	333,424	1,033,536
In 1888-89.....	628,208	343,168	971,376
In 1889-90.....	505,232	607,376	1,112,608
In 1890-91.....	468,720	571,984	1,040,704
In 1891-92.....	399,056	646,352	1,045,408
In 1892-93.....	.....	.....	1,116,864
In 1893-94.....	.....	.....	1,076,992

The rubber yielded by this section is the product of the large evergreen *Ficus elastica*, which is found in the damp forests at the base of the Sikkim Himalaya and eastward to Assam, Chitragong, and Burma. In the rubber tracts of Upper Burma these trees occur singly or in small groups in the dense forest, at an estimated average rate of nine trees per 100 acres. The seed of the *Ficus elastica*, where the tree grows naturally in the forests, germinates almost invariably in the forks of trees, at a height of thirty feet or more, and the young plants require six to ten years to send down branches to take root in the ground. These aerial roots grow rapidly thenceforward, sometimes reaching a girth of four to six feet. Later other branches are thrown out, perhaps as high as eighty feet, and these also descend until they take root. The trees require an exceedingly damp atmosphere* to thrive in, and are found to do best in lowlands, provided they are free from swamps. Within recent years the cultivation of the *Ficus elastica* has been undertaken in Assam,

* Assam possesses in Chirā Punji the meteorological station with the longest recorded rainfall in the world. The registered rainfall in the three years 1874 to 1876 averaged 368.41 inches.

the Charduar plantation dating from 1873. The seeds are planted in nursery beds and the seedlings transplanted into rows cut through the forests. Some of the seedlings have been planted in the forks of trees, but they are apt to become dry about the roots and fail to thrive. The more common mode of planting has been in small mounds of earth, three or four feet high. The *Ficus elastica* can also be propagated from cuttings, but not so successfully as from the seed.

In addition to the rubber from the *Ficus elastica*, which is of a red color and hardens after two or three hours exposure to the air, there is a less valuable grade gathered in Burma from the *Ficus laccifera* (= *F. altissima*, Blume), which is black and never hardens properly, being always more or less viscous. It is asserted that rubber from this section is sometimes adulterated with the milk of the *Ficus religiosa*, which is not a rubber-bearing species.

The rubber gatherers cut into the aerial roots above referred to, not confining their operations to the base, but climbing high among the horizontal branches, chopping at every few inches gashes which serve for their foot-hold as well as for the escape of the sap. Branches less than nine inches in diameter should not be tapped, as the juice which flows from these contains little rubber and prevents the product of the larger branches from hardening. Were the base of the tree alone tapped the yield would be very insignificant, and, as the trees are widely scattered, the gatherers make it a point to obtain as much rubber as possible from each tree tapped. The trees must be twice climbed—once to cut them, and again a day or two later, to gather the rubber. The sap which exudes dries beneath the wound and is pulled off by the gatherers, who work the various scraps together in balls from 3 to 9 inches in diameter and weighing from 1 to 4 pounds. A report on the yield of rubber in Burma says that a large rubber-tree with three or four stems and a well-developed crown will yield, the first year it is tapped, 210 to 245 pounds; its yield will fall in the second year to 140 pounds; the third year not more than 52 to 70 pounds will be obtainable, while in the fourth year tapping would be in vain. If, after three successive years of tapping, there should be a rest of two years, perhaps 75 or 85 pounds might be obtained. The impaired vitality due to excessive tapping is shown by a falling-off in the size of the leaves, by the paucity of leaves in the crown, by the decay of the uppermost branches, and by the failure of the incised places to heal. The conservator of forests of Assam having affirmed that continuous tapping of the rubber-trees tended to their destruction,—a fact which experience has impressed even upon the native tribesmen,—there has been some recent legislation requiring longer intervals between tapping and also regulating the seasons and methods for making incisions. The enforcement of laws of this kind is very difficult and uncertain, however, and opinion is divided as to the future of the rubber yield of India. While Mr. O'Bryan is convinced that the rubber area now worked in Burma is very small compared with the total available extent, the figures show a marked falling-off in late years in the rubber exported from Assam, and this is due to the harmful methods in tree-tapping.

The government of Assam derives a considerable revenue from farming out to contractors the sole right to collect rubber in that province. The chief commissioner of Assam has ordered that a duty of 12 rupees (= 24 shillings) per maund (= 80 pounds) shall be levied on all rubber extracted from trees on

DESTINATION OF INDIAN RUBBER EXPORTS.

COUNTRIES.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.
United Kingdom...	788,124	659,232	654,080	839,664	829,136	863,744
United States.....	213,024	187,040	236,320	155,008	158,368	222,768
Straits Settlements..	1,456	15,008	2,688	4,032	35,056	21,952
Egypt.....	.....	101,472	217,056	42,000	18,144	.....
Germany.....	22,624	8,624	.....	.....	4,704	5,936
Hongkong.....	1,680	.....	.....	.....	.....	2,464
Holland.....	.....	.....	1,680	.....	.....	.....
Italy.....	6,608	.....	.....	.....	.....	.....
Other Countries....	.....	.....	784	.....	.....	.....
Totals.....	1,033,536	971,376	1,112,608	1,040,704	1,045,408	1,116,864

lands at the disposal of the government and not included in a reserved or village forest. In 1888 the monopoly system of rubber-gathering was abolished in Burma and the trade thrown open to all who wished to take out licenses by paying a royalty

of 8 annas (= 24 cents) per viss (= 3.65 pounds). The entire trade is in the hands of agents of Chinese firms.

A customs official at Calcutta, reporting upon the Bengal (Assam) rubber trade, expressed regret that this rubber did not command higher prices in Europe and America. "It would seem probable," he wrote, "that, with proper care and more attention to the extraction of caoutchouc the value of the trade to India would materially increase. I understand that the inferiority of the Indian article as

exported is not due to the intrinsic inferiority of the trees in Assam, but to the careless way in which the caoutchouc is collected and to its so coming into the market full of extraneous matter [bark, wood, mud, sand, and stones]."

THE GOLD COAST AND "ACCRA" RUBBER.

THE several names "Accra," "Cape Coast," "Saltpond," "Axim," and "Addah," applied to certain grades of African rubber, belong to towns in Gold Coast colony, on the Atlantic coast, or, to be more definite, on the Gulf of Guinea. No other district has experienced a more rapid development in the production of rubber. Gold Coast is one of four neighboring British crown colonies, the other three being Sierra Leone, Gambia, and Lagos, all being producers, more or less, of rubber, though Gold Coast takes the lead in this respect. The last-named colony is estimated to include 29,401 square miles, stretching along the coast and extending inland, on an average, about fifty miles. The population by the last census was 1,406,450, of which not more than 150 were white men. Accra, with about 20,000 inhabitants, is the largest town in the colony and the center of commercial activity and of administration. It is the starting-point for trading expeditions to most parts of the colony, and a railway has been proposed for improving its connections with the interior. Accra is reported to be the most healthful point on the West African coast. Gold is no longer mined in this colony, but it is probable that rubber will be found a more valuable product than the yellow metal ever was.

The importance of the rubber supply of the Gold Coast colony was first brought to public notice by Mr. Alfred Molony, while filling the office of governor there, in 1882, in letters contributed to the newspapers. The first practical experiments in rubber-gathering in the colony were made by F. C. Grant, of the Cape Coast district, whose example was quickly followed by others, and, the undertaking proving remunerative, the collection of rubber was begun in every part of the colony. The industry has since developed amazingly, partly due, no doubt, to the active interest in the subject shown by the present governor of the colony, Sir William Brandford Griffith. Before entering upon his office this gentleman had identified himself with the movement to establish a botanical garden for the promotion of agriculture on the Gold Coast, and through his influence, with the coöperation of the Kew gardens, the botanical station at Aburi was established in 1890. Preliminary to this the colonial government (in September, 1887) appointed a commission of six gentlemen—including W. F. Hutchinson, the most extensive planter in Gold Coast—to report upon the agricultural resources of the colony and the most effective means of developing the same. The results of their work, commu-

nicated to the British foreign office with a supplementary report by Governor Griffith, embody an important contribution to our knowledge of the rubber supply of West Africa. One practical effect of the commission's work was to call attention to the reckless destruction by the natives of the rubber-producing plants, upon which Governor Griffith so seriously remonstrated with the chiefs in the different districts that a marked change in this regard followed.

The earliest records of the rubber export from Gold Coast are for the year 1880. The figures for all the subsequent years are not accessible to the writer, but the table herewith is sufficiently complete to show how rapid has been the growth of the new industry. It is to be kept in mind that the rubber-gathering is in the hands of natives, who are strikingly averse to the adoption of new ideas.

YEARS.	Pounds.	Value.
In 1880.....	1,200	\$ 215
In 1881.....	555	155
In 1882.....	70	5
In 1883.....	57,913	11,372
In 1884.....	223,843	68,100
In 1885.....	548,474	130,875
In 1886.....	1,549,121	349,555
In 1887.....	1,306,252	312,430
In 1888.....	878,387	190,240
In 1889.....	1,241,628	275,990
In 1890 (Jan.-Sept.)...	2,234,819	803,078
In 1891.....	.....	.....
In 1892.....	2,663,020	833,300

[NOTE.—The values quoted above are those reported to the Gold Coast customs service in English money, converted at \$5 to £1. The average export value of rubber was about 12½d. per pound.]

The principal sources of supply are vines rather than trees, and include the various species of *Landolphia* and the *Urostigma Vogelii*, besides which a considerable quantity is also obtained from the *Tabernaemontana crassus*. Respecting the wasteful tendency of the natives in destroying these plants, Governor Griffith writes: "There are two circumstances from which comfort may be derived in this matter: first, the rubber-family plants are virtually inexhaustible; and, second, if a tree or vine is cut down, the part remaining in the ground sends up new shoots which grow rapidly and in due time are again operated upon." He reports that cuttings ten inches long of rub-

ber-vine roots, 2½ inches in diameter, grow readily in tubs, and such cuttings are being experimented with at the Aburi station with a view to starting rubber plantations. Such plantations are recommended by the agricultural commission above referred to, for the reason that the *Landolphia* vines will grow readily in situations unsuitable for any other cultivation.

The commission's report states that the preparation of rubber by the natives is slovenly and wet, resulting in an inferior, wet, and ill-smelling product. The German traders in the colony are said to obtain a higher price for the rubber shipped by them, by cutting the product into small pieces, passing them between grooved steel rollers to express the non-coagulated juice, washing them to get rid of other foreign substances, again passing them between rollers, and finally drying them in the sun. This process is long and tedious, but it raises the value of the rubber by 50 per cent. It would be rendered unnecessary, however, by proper treatment of the milk in the first instance. German traders, by the way, obtained an early foothold on this coast, and still operate on a large scale. Governor Griffith wrote in November, 1890, that one German establishment in Accra had, during a considerable part of that year, purchased rubber at an average outlay of \$2000 daily, and that 120 women were constantly employed to purify the rubber before shipment.

Whatever process is adopted, says the agricultural commission, "the milk should be coagulated as soon as possible after collection, for decomposition rapidly sets in and materially modifies the character of the article. The use of salt and alum should be avoided, as these are injurious to the quality of the rubber on account of the 'wetness' which is caused by the presence of saline particles, which are never completely removed by pressing." It has been suggested that the inferiority of African to Pará rubber is due largely to the former being sent to market in a raw, green state, whence possibly arises also the disagreeable odor, generated by decomposition. The desirability of introducing the *Attalea excelsa*, for the purpose of employing its nuts (urucari) in smoking the rubber, as in Brazil, has been discussed. But since the smoke from any other oily nuts might prove equally efficacious in curing rubber, it is possible that Gold Coast already has at hand a good substitute for the Brazilian article. The chief industry of West Africa is the manufacture of palm-oil, from the fibrous covering of the nuts of a different palm from that growing in Brazil. This oil is widely used in making soap and candles, in the processes of tin-plating, and for many other purposes. But while the kernels also contain oil—to the extent often of 30 per cent. of their weight—the natives have made little attempt to extract it. Some of the kernels are exported to European oil-factories, but for the most part they go to waste, as the cotton-seed used to in the southern United States. If these kernels should prove of value in curing rubber, an important advance would at once be marked in the African rubber industry, for both the oil-palm and the rubber-vines exist practically without limit, and are usually found in the same districts.

It is suggested by Christy, in his "New Commercial Plants and Drugs," that the extinction of the *Landolphia* species can be prevented by cultivation. He advises plantations, where the vines may be cut down to the ground every year, the whole plant pressed between rollers, and the juice thus extracted treated with carbon bisulphide which, he says, dissolves the rubber but not the injurious gummy matter.

THE plant formerly occupied by the Colchester Rubber Co., at Colchester, Conn., is offered for sale by the United States Rubber Co., but it is understood that it will not be rented to any concern in the rubber-manufacturing business.

TRADE PUBLICATIONS.

A PAMPHLET that can be easily carried in the pocket, and that should be of special interest to wheelmen, is one on Air Tires and Rubber Goods. It has illustrations and descriptions of special tires, together with a treatise on valves, tubes and handles. The cover of the book is decorated with a picture of a most prosperous-looking plant where these goods are made, which is none other than the Cleveland Rubber Works, of the Mechanical Rubber Co., of Cleveland, O., by whom it is published.

—"Never Get Left" has a suggestion of slang in it, but also suggests progressiveness. It has been given as a name for the popular pneumatic tire about which the pamphlet has been published, giving illustrations of the tire on wooden and steel rims, showing the method of tightening, and giving full directions as to lacing. The booklet is very prettily gotten up, the cover printed in black and gold, with a picture of the plant where the goods are made. Published by the Boston Woven Hose and Rubber Co.

—Another tire pamphlet explains the Akron Flier, Reindeer, and Diamond tires. The illustrations in this are good, and the descriptions such that any one can understand their points of excellence. The introduction of the pamphlet is in verse, and mentions the "Tyre of Hiram," which should attract the attention at least of the masonic brotherhood. Published by the Diamond Rubber Co., Akron, Ohio.

—A very attractive booklet, printed in red and black, and devoted to Emery Wheels, Bicycle Tires, and general mechanical rubber goods reaches us through the mail. There are many pages of illustration and description, and a full price list of goods mentioned; the book being published by the Manhattan Rubber Mfg. Co., 64 Cortlandt street, New York.

—The catalogue and price-list of rubber boots and shoes manufactured by the L. Candee & Co. (New Haven), for the season 1894-95, like its predecessors, is an attractive piece of printers' work. This fact prepares the recipient favorably for a view of the long list of "Candee" goods contained on its pages, including well-executed cuts of the leading styles.

—The Wellman Sole-Cutting Machine Co. (Boston), whose machines are so widely used in rubber-shoe factories, have prepared a new descriptive pamphlet, in which a dozen plates are given of different parts of the machine, with directions for setting up the same. There is also a price-list of the separate parts.

—The Morgan & Wright tire catalogue is much more than is indicated on the title-page. Following the list of patent pneumatic bicycle-tires made by the big Chicago firm, the pamphlet goes into details of construction of inner tubes, valves, rims, pumps, etc., gives a treatise on repairs, and includes a discussion of India-rubber and its qualities and the good and bad qualities of fabrics used for tires. There is much in the pamphlet of general interest to the tire trade aside from what pertains to the "M. & W." tires alone. Finally is given a record of tires made by this firm, and a list of forty-four exhibitors at the last New York cycle show whose bicycles were equipped, wholly or in part with "M. & W." tires. The company announce that they will have a new factory ready by January, which will double their facilities. The front cover of this catalogue has a pictorial suggestion of what might have been, had Don Quixote and Sancho Panza been mounted on bicycles on their crusade against windmills, while the back cover has a more practical conception, picturing a company of soldiers, fully accoutered, marching on wheels.

CURIOS FROM SOUTH AMERICA.

THE INDIA RUBBER WORLD has already mentioned the Indian heads that were secured by Mr. Herman Reimers, of the rubber-importing house of Reimers & Meyer. Since the publication of the brief item concerning them Mr. Reimer has furnished us a fine photograph of the heads which is herewith reproduced. As it is possible that some who see this picture may have missed its former description we quote a part of it: "In the Alto Maranon, the Ahrearre were formerly constantly at war with the Huamvisas. When they killed or captured one of their enemies they cut off his head, carefully extracted the bones of the skull piece by piece, and, by a secret tanning process, shrunk the fleshy part down until the whole head was about the size of an apple. So skilfully was this done, and so carefully was the law of proportion observed, that the features remained practically the same. Nor was the hair in any way disturbed. When finished, a cord was run through the lips, and it adorned the belt of the victorious warrior, hanging as scalps do from the girdle of a North American Indian."

In addition to this trophy Mr. Reimers has a large collection of curios that he secured during his recent trip to South America. These are now arranged in a room at his home in Brooklyn. The artistic arrangement of them was put in the hands of a New York expert and the result is they are wonderfully well grouped. The second illustration in connection with this article which shows a South American head-dress does not do justice to the subject, for the reason that it cannot bring out the coloring of the gorgeous feathers of which it is made, nor does it give an idea of its height which is three and one-half feet. In spite of its size however it is exceedingly light and is not at all burdensome in the matter of weight. One can really do but little except to catalogue the curios in speaking of them. There



are curiously plaited baskets of South American Indian make, lip ornaments of stone and reeds, beautifully carved paddles, lances, pottery, and scores of Indian shields and arrows. These shields are hung against the walls with the arrows crossed and recrossed in front of them, making a very effective display. Some of the arrows by the way, are tipped with poison points and are very wisely put out of the reach of the visitor. The most valuable pieces in the collection are perhaps the pottery from the Isle of Marajos. It is somewhat similar to the better class of Aztec pottery and it is said the making of it at present is a lost art. There is a great variety of head dresses, pipes, belts, shells, war clubs, curiously carved wooden stools, weapons tipped with bone and monkey teeth, native rattles used in dancing, toucan bills, bracelets, fire wheels, native made combs and curios of molded pure rubber. Perhaps the most beautiful article in the collection is an elegantly decorated hammock and not the least valuable in the collection are yards of native made lace. This description gives but an imperfect idea of the many things that Mr. Reimers brought from the rubber land. Indeed, to do full justice to the collection one must not only see it but must spend considerable time in examining the articles one at a time.

SOME ambulances are now provided with noiseless pneumatic tire wheels. These may save the life of a patient until he can be shocked by the ambulance gong.—*New Orleans Picayune*.

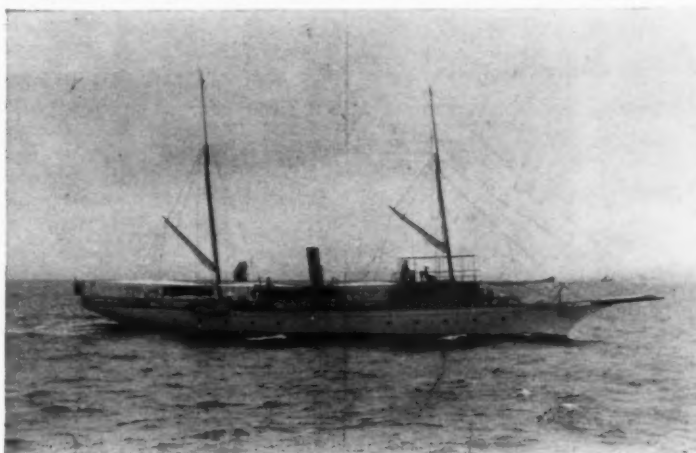
* * *

"WOULD you like some garden hose?" said the clerk in the general supply store.

"No, thanks," was the answer; "I gin'rally go in barefooted to do my weedin'."—*Washington Star*.

THE YACHT "TOINETTE."

MENTION has been made a number of times in the columns of the INDIA RUBBER WORLD of the yacht *Toinette*, owned by Robert D. Evans, Vice-President of the United States Rubber Co. The writer was recently fortunate enough to get a fine photograph of the boat and the following description. She is to begin with a Herreshoff boat, but unlike most of the craft turned out by that firm of designers was not built for speed alone. She was built for a Baltimore millionaire who instead of making a contract in which a certain price was stipulated gave the builder every latitude, only insisting that the yacht should be in every detail one of the finest in existence. The *Toinette* is 135 feet long, 18½ feet beam and registers 106 tons. She carries a crew of eleven men, is fitted with triple expansion engines, a Herreshoff coil boiler, and has such an economical steam plant that she will run ten hours on a ton and a quarter of coal. She is built of 3 inch planking, is very staunch and exceedingly seaworthy and could easily go anywhere in the world. Indeed, the captain remarked that he had far rather cross the ocean in her than in an ordinary steamer as she carries thirty-six tons of coal in her lockers and a trip to almost any part of the world would be perfectly feasible. On her regular gait she can steam thirteen knots an hour and when forced sixteen knots. As to the interior there is a very large cabin aft trimmed in mahogany, the ceiling decorated in white and gold. There is also a large state room the full width of the boat in which is a large double bed and a single bed, and connected with it a bath room. This



bath room is fitted so that salt water baths, the water being pumped up from the ocean, can be had at any time. The main saloon occupies the full width of the yacht and is an apartment 15 feet by 18 feet in dimensions. The sofas that line the walls can be transformed into the most comfortable beds, there being room in this saloon for four passengers. There is also a single state room on the side with toilet and bath rooms connected, and in addition another large state room occupying the whole width of the boat, in which are two beds. On the deck is a beautiful dining-room, finished in mahogany, capable of seating from twelve to fifteen people, while below is the galley, a dumb waiter running between the two rooms. The ports to this yacht are the extra large steamer size, nearly one-third larger than those usually in yachts. The boat is lighted by electricity, there being for this a separate engine and dynamo and in addition to this, storage batteries so that there is no possibility of the guests ever being without light. On the bridge above the dining-room there are brass stanchions and a brass railing, where may be spread a large awning, and, indeed, the whole deck can be covered with awning if the occasion requires. A beautiful feature about this yacht is the large amount of deck room. The deck being free from houses there is fully one hundred feet of promenading space. The yacht is kept in fine shape, the deck being always spotless and the brass work shining like gold. Mr. Evans spends a great deal of his time in the summer on this yacht and entertains many guests.

RUBBER SUNDRIES FOR UNCLE SAM.

THE Columbia Rubber Works, in a recent competition for stationery supplies for the United States war department, were awarded contracts for rubber goods as follows:

Penholders—20 dozen No. 7 at 75 cents; 60 dozen (20 dozen each Nos. 1-3) at 59 cents average.

Rules—2 dozen 12 inch at \$1.02; 4 dozen 18-inch at \$1.63.

Bands—71 great gross No. 16 at 58½ cents; 250 great gross No. 17 at 64½ cents; 200 great gross No. 18 at 67½ cents; 100 great gross No. 31 at 14½ cents; 25 gross No. 00½ at 28½ cents; 800 gross No. 000½ at 32½ cents; 200 gross No. 0000½ at 38 cents; 50 gross No. 000½ at 63 cents; 36 gross No. 0000½ at \$1.10; 24 gross package 4½ × ½ inches at \$1.30.

The aggregate of these awards is \$854.17. At the same time W. A. Wheeler was the lowest bidder for rubber typewriter erasers, at 45 cents per dozen; D. A. Tower for rubber-tipped penholders, Nos. 2-3, at 31½ cents per dozen; Holmes & Co. for No. 32 rubber bands at 15 8-10 cents per gross; and Easton & Rupp for 60 pounds rubber velvet, oblong, No. 20, at 75 cents.

AUSTRIA'S CONSUMPTION OF RUBBER.

EVIDENTLY there is a growing consumption of India-rubber in Austria, where are located some factories which are branches of concerns in Germany. The figures below, dealing with imports of crude India-rubber (including Gutta-percha) into Austria-Hungary are derived from reports of the ministry of commerce at Vienna:

	1892.	1893.
Imports (pounds).....	1,224,080	1,533,620
Exports.....	19,580	11,220
Net imports.....	1,204,500	1,522,400

The imports for the first seven months of 1894 reached 723,260 pounds, against 755,920 pounds for the same period last year, and 611,380 pounds in January-July, 1892.

During the past year a considerable increase occurred in the extent of the exports of rubber shoes, for which the principal outlets were Russia and Turkey. At the same time Russia exports a considerable number of rubber shoes to Austria-Hungary.

LETTERS TO THE EDITOR.

RUBBER-PLANTING IN MEXICO.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Being desirous of engaging in tropical planting, I recently spent six months in Mexico, and bought a small tract of land in the southern part of the State of Vera Cruz suited for coffee. I should also like to try the experiment of rubber-culture. Before visiting Mexico I read in THE INDIA RUBBER WORLD the controversy between Minister Romero and Mr. F. O. Harriman, and, from my observations since, I am inclined to agree with the latter that coffee and rubber can be successfully grown at the same elevation.

I expect to return to Mexico shortly to begin operations, and I write to ask if there are any other articles or works on rubber-culture that you can recommend.

C. R. L. FINDLAY.

Abingdon, Va., September 13, 1894.

[THERE is nothing in print which would be likely to assist our correspondent in starting a rubber plantation. The industry is too new for much material to have been produced for writing books about it. We hope, however, to be favored by such pioneers as Mr. Findlay, with the results of their experiences, for publication.—THE EDITOR.]

THE "WORLD" COVERS THE GROUND.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I wish to know if there is any book published that gives a description of how rubber trees are tapped in Brazil, and how they cure the rubber. If there is, please give me the name and price.

GEO. D. EMERY.

Chelsea, Mass., Sept. 17, 1894.

[The method of tapping trees in Brazil and curing the rubber has been covered more fully in THE INDIA RUBBER WORLD than in any other printed pages, indeed, about all that can be said about it has been said. We therefore respectfully refer our correspondent to the files of THE INDIA RUBBER WORLD.—THE EDITOR.]

ABOUT ACCRA RUBBER.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Can you tell us anything about acron rubber, which we have seen mentioned? Yours very truly,

MANUFACTURER.

Boston, Mass., Sept. 27, 1894.

[Our correspondent probably means accra rubber, which is one of the South American gums. The gum varies in price, all the way from 18c. to 50c. It is sold in the shape of accra flake, accra buttons, accra strip, etc. The flake is the cheapest, and at the best is poor stuff. The strip, however, which is the highest in price, is a tough, dry rubber, and is coming more and more into use.—THE EDITOR.]

WHY DON'T YOU ADVERTISE?

TO THE EDITOR OF THE INDIA RUBBER WORLD: We are in the raw rubber business as merchants, doing only Continental business, but are desirous of obtaining a share of American orders, and should esteem it a favor if you would kindly give us a notice in the trade and personal notes. We personally inspect every parcel we offer or buy, and make this a feature of our business. Very truly yours,

HYDES & CO.

Liverpool, Sept. 8, 1894.

A NEW CANADIAN RECLAIMING COMPANY.

TO THE EDITOR OF THE INDIA RUBBER WORLD: While hardly out of the organizing state our company is pushing forward with the hope of having one of the most complete mechanical plants in our special business in existence. Our

directors include some of our ablest men backed with a capital of \$100,000. The purpose of our starting is fairly explained by our name,—reclaiming rubber is our sole purpose, and all interested look forward confidently to the future. While we are a Canadian concern, started for the purpose of supplying Canadian manufacturers, we can still claim the sympathy of our brothers south of line 45, because there are Americans interested with us whose ability we rely on to no small extent. Very truly yours,

DOMINION RUBBER RECLAIMING CO., LTD.

By H. J. Ross, Manager.

Montreal, Sept. 17, 1894.

AS FAR BACK AS '77.

TO THE EDITOR OF THE INDIA RUBBER WORLD: It may be interesting to some of your readers to know of a find I made recently. On our old mill records of August, 1877, there is a memo. of a sale of rubber reclaimed by the acid process for a Boston rubber factory. The rubber was subjected to the acid, after cutting or crushing, for the purpose of removing the fiber. We used twelve parts of water to one part of acid for this particular lot. Yours truly,

E. C. PIERCE.

Boston, Sept., 1894.

A \$900 RUBBER BALL.

A BISCUIT of Pará rubber weighing 1181 pounds is on exhibition in the front of the Goodyear Rubber Manufacturing Co.'s store, at Nos. 503-505 Broadway, New York. On a card attached the claim is made that this is the largest specimen ever brought to the United States. It formed a part of the Bolivian rubber exhibit at the World's Columbian Exposition last year. Another part, consisting of the implements for collecting rubber, is shown in the down-town store of the Goodyear company, and was described recently in THE INDIA RUBBER WORLD. This large biscuit was forwarded from Trinidad, Bolivia, by Lucio P. Valasco, one of the most important rubber-shippers on the Beni river, and reached the United States through the house of R. F. Sears & Co., at Pará. The rubber which comes from Bolivia usually is well prepared, reaches this market in good condition, and sells at the highest prices quoted for fine Pará. At the prices prevailing of late, therefore, this piece of rubber may be estimated to be worth not far from \$900. This would buy a good farm in some parts of the country, and is as much as a western farmer would get now for 1800 bushels of wheat. Yet it was produced by Indians dipping a stick into rubber-sap and smoking it until dry, repeating the operation until the innumerable layers of smoked sap made a ball weighing more than half a ton.

A CHANCE FOR RUBBER EXHIBITS.

NEXT December Madison Square Garden, New York, will contain one of the most interesting exhibitions yet presented to the public. The entire floor space in the great amphitheater will be fitted up to represent the ancient city of Nuremberg with its old castle, city gates and quaint streets. The streets will be fitted up for one hundred stores and in these will be exhibited for sale toys, notions and fancy goods from every part of the world. In addition to a promenade concert by one of New York's famous bands and an intermittent concert by the Vienna Ladies' Orchestra, there will be a continuous performance of a thirteen hours' programme comprising Punch and Judy shows, marionettes, performing dogs, etc. This fair will open December 5, and continue until Christmas, under the direction of Frank W. Sanger and Mr. H. A. Leslie, general managers of the Toy Fair Co.

A NEW RUBBER BOAT.

THE Layman Pneumatic Sporting Boat was described in this journal for July last, before the invention had been perfected, as "a rubber combination suit," consisting of "light boots and pants, which terminate at the waist in a sort of float, shaped something like a horse collar, with the pointed ends at front and rear, and which can be inflated and deflated at the will of the wearer." But the inventor, H. D. Layman, of Little Rock, Ark., prefers to call it a boat, which seems the more proper term, since its only use is in the water. The first suggestion of such an article came to Mr. Layman while out hunting on a southern bayou, when some of the game he had brought down fell beyond his depth for wading, although he wore high-water boots. The sporting boat illustrated herewith is the result of his experimenting. It is, by the way, available for every purpose for which one goes into the water except carrying freight or traveling long distances. This boat comprises four separate air-chambers, to guard against disastrous consequences if, by chance, a puncture should occur. It may be inflated by means of a pump, though the inventor thinks that it may easily enough be done by means of the mouth. The length of the boats made so far is forty-four inches and the width thirty-four inches. The weight of these is a little more than fifteen pounds, but it is intended to make this a maximum. When deflated the boat can readily be compressed within a space not exceeding that of an ordinary handbag, or, say, twelve inches square and six inches thick. When in the water the boat is propelled by means of the feet of the occupant, which are each provided with a pair of "paddles," which close as the feet move forward and open, to exert their force against the water, as the feet move backward. As will be seen from one of the illustrations, the boat may be provided with a rubber cape sufficiently large to protect the interior from rain. A patent has been allowed by the United States government, but has not yet been printed in the *Patent Office Gazette*. Patents have also been applied for in other countries. Sold by the American Rubber Boat Co., No. 487 Broadway, N. Y.



PNEUMATIC SPORTING BOAT, WITH CAPE.



LAYMAN'S PNEUMATIC SPORTING BOAT.

A NEW BALATA-GATHERING CONCERN.

THE Jean Rubber Co. is the name of a corporation formed under the laws of West Virginia, with an authorized capital of \$5,000,000, to operate a rubber concession in French Guiana. The concession was granted on April 1, 1893, to Joseph M. Jean, in consideration of services rendered during a long term of years as colonial governor, and embraces 62,500 acres of land and the privilege of employing convicts to gather rubber, on condition of the payment of an export duty of 1



PNEUMATIC SPORTING BOAT.

cent a pound. The officers named in the prospectus are Henry C. Tum Sunden, president, and B. C. Davis, treasurer, and the offices are at No. 186 Remsen street, Brooklyn. Fresnau, the French engineer, found rubber in this colony in the middle of the last century, and Jean Baptiste Aublet, the French botanist, described the tree in 1775, but not much has been heard of Cayenne rubber since. INDIA RUBBER WORLD readers know of the Balatagum industry in

Dutch Guiana and British Guiana, and it is possible that Balata may exist in equal quantities in the neighboring French colony, but the statements made in the Jean Rubber Co.'s prospectus convey no definite information on any subject other than the tremendous profits in sight for the stockholders.

GOOD RUBBER CABLE-INSULATION.

SOME vulcanized rubber stripped from a cable laid in the China seas between 1869 and 1874, which has lately been fished up and respiced, is reported by the *India-Rubber Journal* (London) to have been found perfectly good, with "a remarkable vitality in it yet." The cable was made by Hooper's Telegraph and India-Rubber Works, Limited, at Millwall. By the way, the latest annual report of the Cuba Submarine Telegraph Co. mentions that the rubber-insulated cables of that company laid in 1875, 1881, and 1891, are in good working condition. The Hooper works have secured from the telegraph company, as a result of the excellent results of rubber insulation, a contract for a further line of cable.

THE CLOTHING INDUSTRY IN AMERICA.

AN article on the manufacture of rubber clothing in the United States, in the *Home Market Bulletin* (Boston) contains the following statements: The American manufacturers have practically run the foreigners out of the market, and are giving the people better garments and at lower prices than ever prevailed before. First-class dealers who three years ago would not touch an American garment now sell them altogether, and it will be difficult to find a foreign waterproof of recent make in any store in Boston. Our manufacturers have improved their facilities, and now they produce not less than 2500 makes of wool-surface rubber garments and a variety of cotton-surface goods. There is now little demand for silk surface, but whenever there is it can be promptly met. A handsome cotton-rubber garment now sells at retail for \$3.50 which it was impossible to buy three years ago, and which cannot be distinguished at a little distance from a high-grade wool garment. The wool-surface garments average 30 per cent. lower in price than they did before. The nicest of men's mackintoshes then sold for \$35 or \$40, and to-day the highest price for a better garment is only \$20. A medium-grade English mackintosh for ladies brought at wholesale \$8.50; a vastly better American garment now sells at wholesale for \$6.50. A large line which brought \$12 at retail four years ago now goes at \$5. It is stated that the extension of this industry has had a favorable effect upon the domestic manufacture of woollen cloths in this country, and that the latter can now be bought in as great variety as can be had elsewhere, while changes in style can be secured from our own manufacturers of cloths on short notice and with such guarantees of quality as cannot conveniently be had or enforced abroad.

A NEW PROMOTER OF EXPORT TRADE.

NEW YORK is to have a permanent commercial museum modelled after those maintained in several European cities with good results to the export trade of their respective countries. It is styled a commercial exhibit of the labor products of "the three Americas," and is to embrace a display of (1) Spanish American products suited to the markets of the United States; (2) products of North American factories suited for the southern republics; and (3) those European products, now finding a sale in the countries referred to, which North American manufacturers may find it to their interest to examine. It has been organized by the Pan-American Co., a private corporation under the laws of New York, which has secured permanently the great six-story Industrial building, on Lexington avenue, near the Grand Central railway station. There are no less than 6½ acres of floor space in the building. The exhibition is to be kept open at all times, and admission is free. It is wholly a business enterprise, with no amusement features, the expenses to be defrayed by the countries, states, business organizations, or firms taking floor space by the year. Already Mexico, Brazil, Colombia, and some other countries have secured space for a display of their natural products, feeling that in such an exhibition, planned for purely business purposes, more good will result than from such great fairs as that in Chicago, where the average visitor sees nothing well. Many

American manufacturers of machinery, carriages, furniture, and other articles suited for export have engaged space, and several have already placed their products on view.

This enterprise has the endorsement of the New York Chamber of Commerce, the New York Board of Trade and Transportation, and many commercial bodies throughout the country. Its president is the Hon. John R. G. Pitkin, a native of New Orleans, who has been conspicuously identified with economic questions relating to the Mississippi valley and South America. He recently ended a term as United States minister at Buenos Ayres. The other managing directors are William E. Curtis, remembered in connection with the recent Pan-American Congress at Washington; Thomas H. Bullick, a New Yorker who has served as counsel for many South American corporations; and William Harper, formerly a special agent of the United States government.

The Pan-American Co. are not a selling agency, and exact no commission on any sales which may result from their efforts to bring seller and buyer together. Already, as President Pitkin informs *THE INDIA RUBBER WORLD*, some good sales have resulted from the limited number of exhibits now on the floors.

Señor Gregorio E. Gonzáles, director of the Mexican department, informs *THE INDIA RUBBER WORLD* that his republic will occupy permanently 5000 square feet of floor space, and that several Mexican states will fill additional spaces. One of the products to be shown prominently is the Mexican India-rubber, of which specimens are now on the way to New York. By the way, Señor Gonzáles reports a growing interest in his country in rubber-culture, he having met, while lately in the city of Mexico, some citizens of the United States who had invested in rubber and coffee lands in the state of Vera Cruz. One of them, H. R. Gregory, of Kansas City, Mo., claimed to have bought a plantation on which there were standing 500,000 young rubber trees.

CONDITION OF THE CHICLE MARKET.

THE New York market for Chicle is reported by the Seeger & Guernsey Co. as quiet. The dry weather in the southern Mexican states during the past two months has largely reduced the output of Chicle, since this gum, like India-rubber, is produced more freely in moist seasons. Prices have not advanced on account of the short receipts, however, as the chewing-gum manufacturers have good stocks on hand, besides which heavier arrivals from the new crop year recently begun are expected shortly. The average quotation since the first of the month has been about 27 cents per pound. The yearly production of Chicle amounts to about 2,250,000 pounds, and the consumption is confined now to the manufacture of chewing-gum. At one time experiments were made in compounding Chicle with other gums, for instance in the insulation of wires, but they were so far from successful that the producers of Chicle no longer have any hope in that direction.

A CHANCE TO BUILD A PACIFIC CABLE.

THE government of Canada invites cable-manufacturing companies and others to state the terms upon which they will be prepared to lay, and maintain in efficient condition, a submarine electric cable across the Pacific from Canada to the Australian colonies. Bids are invited for a cable to be owned and controlled (1) by the government, or (2) by a subsidized company, or (3) by a company under a government guarantee.



A RAINY DAY

MAKES YOU
THINK OF .

RUBBERS and UMBRELLA?

WE MAKE RUBBERS
NOT
UMBRELLAS.

RUBBERS

To WADE
WALK
RIDE **IN.**

For WET
MOIST
DRY **DAYS.**

To SIT
STAND
TALK **IN.**

For COLD
MILD
WARM **DAYS.**

We Make **RUBBERS.** Are You a Buyer?

BOSTON RUBBER SHOE COMPANY,
MAKERS,

Because they know how.

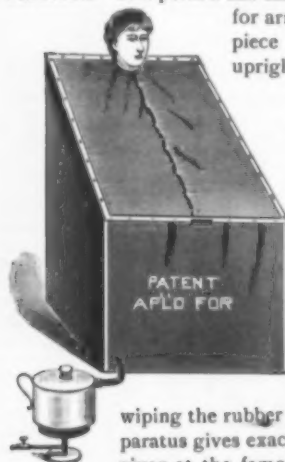
NEW GOODS AND SPECIALTIES.

AN INVENTION that has met with a very warm reception on the part of those who use typewriters is a rubber pneumatic cushion recently placed upon the market. This is designed to take the place of the celluloid key. It is simply a rubber key with an air space in it, and with the letter that it represents vulcanized into the upper surface. It gives an exceedingly easy touch and may be attached to any kind of typewriter. Operators of typewriters often complain of nervous complaints arising from the constant use of the hard keys of the machine, to say nothing of blunted finger tips, swollen knuckles, etc. Indeed, physicians have spoken of serious nervous ailments unquestionably due to use of the hard keys. The invention of the soft rubber cushion brings a welcome relief to the sufferers of this class. Those accustomed to manifold work will no longer find the task of hammering the hard keys a bugbear, but at the close of each day's work will discover that their fingers are entirely free from the stiffness from which they have usually suffered. Manufactured by John Underwood & Co., Vesey street, New York.

GLASS' RUBBER VAPOR BATH CABINET.

THIS cabinet is made of rubber cloth, and including the heating apparatus weighs less than twenty pounds. It folds so perfectly that it can be put, when not in use, in a dresser drawer or wardrobe. One person can easily use it alone. The directions

for arranging it are, fasten each steel piece over the screw head and each upright piece to its catch. Connect the kettle to zinc piece with short rubber tube. Fill the kettle with water and place over lighted stove. Place low chair or stool on towel in the bottom of the cabinet. Close the top. In twenty minutes, the room being warm, the patient can get in and after remaining from five to fifteen minutes a perfect vapor bath will have been taken. The cabinet is easily cleansed by simply



wiping the rubber cloth. It is said that this apparatus gives exactly the same treatment that is given at the famous Hot Springs of Arkansas. An analysis of the water of these springs shows that they are devoid of medicinal or chemical agents, and that it is simply the mode of using the water in the form of hot vapor baths that accomplishes the remarkable results. When desirable however, any medicinal agents may be introduced into the vapor. Manufactured by Dr. P. J. Glass, Chattanooga, Tenn.

BARCLAY NIPPLE NO. 20.

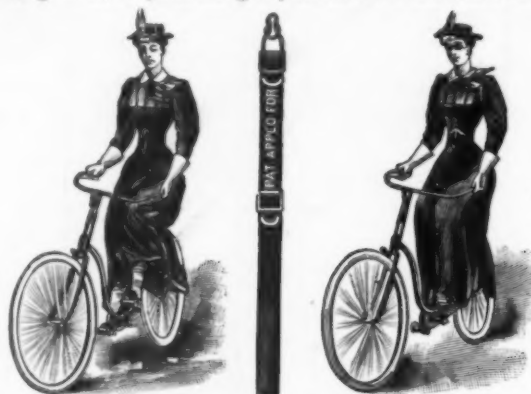
A PROMINENT wholesale house in druggists' sundries sends the accompanying illustration and description. The nipple shown is similar in shape to that sold by the same house known as the "Home." It is to be made of pure gum and is in every respect a serviceable article. The manufacturers claim that it is the cheapest in the market, and yet of a quality equal if not superior to any at the price. They are



packed three dozen in a box and four boxes in a carton. Manufactured by Whitehall, Tatum & Co., New York, Philadelphia and Boston.

HOPP'S BICYCLE SKIRT HOLDER.

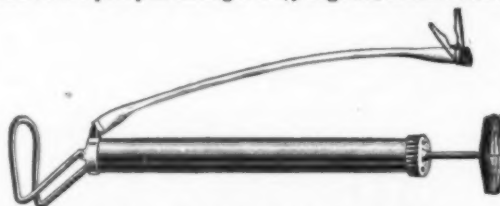
A NOVELTY that is now being introduced to the bicycle trade is an elastic skirt holder. It is a device to hold the skirts of lady bicyclists in place, and prevent them from becoming entangled in the wheel, which frequently happens where the holder is not used. It is a simple and practical arrangement, all parts being adjustable at a moment's notice.



It is provided with a patent clasp which cannot become unfastened by accident nor can it tear the clothing. The holder is attached by slipping the loop over the instep, the clasp at the other end being fastened to the skirt. The holder is made of extra heavy super-lisle elastic web and is in every way made strong and durable. It is particularly adapted for fall riding when the weather is windy. Manufactured by Braddock Hose Supporter Co., 358 Dearborn street, Chicago, Ill.

THE FRAZIER TIRE PUMP.

THE illustration shows an effective and powerful pump for pneumatic tires, designed for home use. The barrel in this is very long admitting of a free and easy stroke. The diameter of 1 1/4 inches is ample while not being so large as to consume too much energy in operating. A valuable feature of this pump is the style of rubber tubing, which is large at the ends and at the same time of smaller diameter through the greater part of its length, thus making it far more flexible and as it is attached to the pump at an angle of 45 degrees, it can when not in



use lie along the barrel without kinking and eventually breaking the rubber at the point of attachment. The plunger is of large diameter and having a long guide cannot bend over and bind when a full stroke is taken. The connection by which the pump is attached to the valve is very simple, is manipulated quickly and easily, and the fastenings are adjustable so that it fits almost any of the ordinary valves. Manufactured by W. S. Frazier & Co., Aurora, Ill.

SOMETHING NEW IN PUMP VALVES.

THE Branden Pump Valve is something entirely new in its line. The merits of these valves are so obvious to the average mechanical mind that they have gained in public favor with



great rapidity and are now in constant and growing demand wherever pumps are employed. They have the appearance of ordinary rubber valves, but through their central plane runs a wire-coil spring, as shown in the cut. This not only serves as a firm support to keep the central opening round, but strengthens the whole body of the

valve, so that they are able to withstand more than double the pressure of ordinary rubber valves; at the same time—owing to the peculiar nature of the coil spring insertion—they are *flexible and elastic* throughout. This permits them to bend over temporary obstructions and form a water-tight seat, by which the efficiency of the pump is maintained, and thereby a considerable saving in fuel effected; their elastic quality also prevents them from "dishing" or bending up on the edge. As the spring preserves the valves in their normal shape, they can be turned over and used until both sides are worn out. These qualities render them much more durable than ordinary rubber valves, and, this fact, taken into consideration, their price will be found considerably lower. These valves are made in all the regular sizes, used in steam and power pumps of standard makes. Special sizes, to any dimensions can readily be made to order. The Branden Valve is controlled exclusively by the Crosby Steam Gage and Valve Company of Boston, Mass., and may be ordered from there, or from any of its branches, in New York, Chicago or London, England.

THE RAVEN SELF-VULCANIZING PACKING.

A PACKING that is made either plain or with a wire insertion and is having a large sale is the Raven. As described by the manufacturers its peculiar properties are, that it is exceedingly soft and flexible, and is very easily adapted to uneven surfaces. When brought in contact with heat, it vulcanizes after a time, and when once vulcanized it is not affected at all by oils or by grease. It is sold in the regular sheet form, or is made up into gaskets or rings. The sheet is printed with the name of the manufacturers and the trade-mark, every ten feet, the rolls being 36 inches wide and



about 15 yards long, varying in thickness from 1-32 to 1-4 of an inch. Manufactured by the Manhattan Rubber Mfg. Co., 64 Cortlandt street., N. Y.

THE POLAR FLEECE LINED SOCK.

A WELL known house in the trade are putting upon the market what is known as the Polar sock. It is well made and lined with fleece, the lining being warranted to contain 75 per cent. pure high grade wool. They are exceedingly soft and comfortable and are not only used for wearing inside rubber boots, but for house wear, for the bath room, chamber and hospital. The goods are manufactured by J. K. Krieg & Co., 39 Warren street, New York.



THE EMERGENCY TIRE.

THIS tire, which has been called two tires in one, has within it a diaphragm which may be called into requisition inside of one minute, enabling the rider in case of a puncture to inflate



the tire through the air valve, throwing the diaphragm over against the tread, thus covering the wound and enabling him to continue his journey without loss of time or inconvenience. The Emergency is usually inflated through the tread or cushion with a hypodermic needle as shown in the illustration. The needle should be inserted at an angle of about 45 degrees. Care should be taken when this is inserted to avoid puncturing the diaphragm on the opposite side. This is done by pressing with the left hand the sides of the tire thereby raising the tread from the diaphragm. The diaphragm is placed in the tire to be used only in case of accident. When the tire is to be returned to its normal condition it should be deflated by opening the air valve, after which mend the puncture and inflate by the needle. Manufactured by the Diamond Rubber Co., Akron, Ohio.

BAILEY'S RUBBER SEWING FINGER.

WHEN any new invention bearing the name of Bailey appears on the market, the almost instant inquiry is, "What will he get up next?" At the same time all such questioners acknowledge that Bailey's inventions although apparently simple, are such that hosts of people at once appreciate their value and send for them. Mr. Bailey's latest is the rub-

ber sewing finger shown in the accompanying illustration. This is not a thimble, but is a protector for the forefinger so often pricked and disfigured by the point of the needle. This little protector is light, elastic and comfortable. It is ribbed on the inside and ventilated at the smaller end, so that it neither draws



nor sweats the finger, and its use avoids sore or callous fingers. While it is not tight enough to be uncomfortable, there

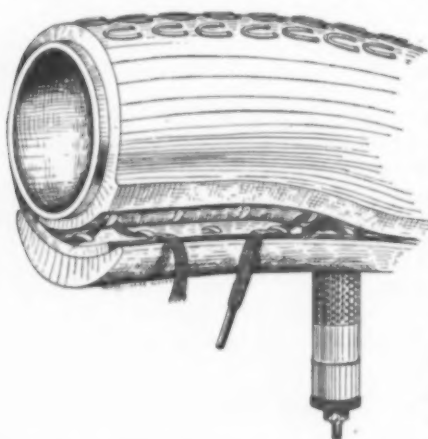
is no danger of its slipping off because of the peculiarly ribbed surface on the inside. It is made in three sizes, small, medium and large. It is now being generally introduced into the dry goods houses, or one is sent by mail on receipt of three two-cent stamps on addressing the manufacturer.

Another novelty in this line and perhaps the outcome of the sewing finger has also been produced by Mr. Bailey, which is a new style of finger cot. It is a well known fact that thousands of rubber finger cots are used annually in various trades, especially where the fingers of operatives come in contact with acids or alkalies. The old-fashioned cot being smooth on the inside, is troublesome for the reason that it draws the fingers and causes them to perspire freely. Indeed, it is a question many times if the acid itself would not be less injurious to the fingers than the plain cot. Mr. Bailey however, has produced a cot with the same ribbed interior that is shown in the sewing finger, and which allows of perfect ventilation while it is worn. Further than this, while it is in no danger of dropping off it can be slipped on and off very easily. Both of these novelties are manufactured by C. J. Bailey & Co., 22 Boylston street, Boston, Mass.



THE IMPROVED LOOP TIRE.

THIS tire can be cemented or riveted to any ordinary or special rim, and when once permanently fixed cannot creep or roll. It can be also easily and quickly repaired without removing it from the rim. No special tools are required to open or close it and it has the advantage of an endless inner tube. Simply pushing the cover, when deflated, to one side, will expose



an upper and lower row of loops which are held together by a straight lace. This straight lace may be cut at any point allowing enough of the inner tube to be pulled out so that a puncture can be easily repaired. With an ordinary string the orifice can be

closed in a few moments, or if necessary the entire tube can be entirely removed and afterwards replaced with very little trouble. Another feature of interest is the cover is so constructed that perfect protection is given to the inner tube, the latter resting as it does in a smooth bed, free from contact with the

rim or fastenings, nor is there danger of its being pinched on account of being forced into cracks or seams. This tire is also furnished with the horse-shoe tread which prevents slipping and throwing of water. This result is attained because of the tendency of water to follow a smooth instead of a broken surface. The Loop Tire is furnished, however, with either plain or figured treads. Manufactured by the Cleveland Rubber Works of the Mechanical Rubber Co., Cleveland, Ohio.

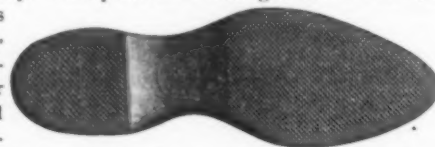
NORMA LADIES' MACKINTOSH.

THIS is a sleeveless garment, fitted with both cape and hood, the cape being 28 inches long and buttoned in front. The hood is what is known as the monk's hood, is adjustable and silk-lined. The cape is also adjustable, is very long and full, and a great many of the garments this fall have been sold with beautiful plaid linings, in place of the single color silk linings that were so popular last year. This garment may be worn either with the cape and hood or without it, and is made up in cravenette or double texture goods. Manufactured by the Clifton Mfg. Co., Boston, Mass.



THE HUB ARCTIC.

THE old-fashioned arctic, no matter by whom made, was not a thing of beauty. The question of fitting was never considered. It was ugly, shapeless and used chiefly by the older men who cared nothing for appearances. Within the last few years, however, there has been a marked change in that respect. Now the arctics are made



to fit as well as the finest leather footwear. The latest departure in this line is shown in the three illustrations of the Hub

Arctic. These compare favorably with the finest leather footwear, having pointed toes, and being so conformed to the last



that the surface is smooth and unwrinkled. Further than this the workmanship in cloth over dark rubber sole is perfect. The stock from which the latter is made being that of the well-known manufacturers, the Boston Rubber Shoe Co.

THERE has been a gradual increase in the percentage of women employed in the India-rubber factories of Massachusetts. In 1885 there were 417 women to every thousand employés; in 1892 there were 442 women to the thousand; and in 1893 there were 457. It is worth mentioning, too, that they make a good showing on the pay-rolls. Last year the number of women in the Massachusetts rubber-factories whose weekly earnings ranged between \$10 and \$15 increased, while the number of men in the same class fell off. The interest of women in the rubber industry is shown in another way. Last year there were 295 female stockholders in incorporated rubber concerns in Massachusetts, against 253 in the preceding year.

AN ENGLISH VIEW OF THE RUBBER-SHOE TRADE.

AN article on the rubber-shoe trade contributed to the last number of the *India-Rubber and Gutta-Percha Trades Journal* (London) purports to be an impartial expression of opinion respecting the products of several important companies, by one who has had long experience in handling goods of this class. As it relates chiefly to foreign companies, some of its statements may be "news" to readers of THE INDIA RUBBER WORLD on this side of the Atlantic.

The London writer lays particular stress upon the quality of the varnish, and takes pains to explain what he looks for in this particular in choosing a shoe. "A good varnish," he writes, "is one that gives a high luster and can be handled with freedom, without leaving finger impressions (this means to be perfectly dry), and does not crack when stretched; but this is a very difficult matter to obtain, because if you make your varnish too dry you lose your high gloss, or it cracks upon the surface. On the other hand, when your varnish is 'tackey,' or wet, you avoid the cracking on the surface, and retain your high gloss; but you have the other evils to contend with . . . that is, the dust, which spoils the appearance of the shoe. Some dealers believe, when they stretch the shoe and the varnish cracks, that the fault is with the rubber; this is an error. . . . You can strip the varnish off altogether, and the quality of the rubber won't be the least affected, and to avoid cracking is the reason why the varnish is kept soft or 'tackey,' but a good, high-glossed, dry varnish, with little cracking, can be arrived at if it is only systematically gone about."

Beginning with the product of an important American firm the London writer says that their varnish is very "tackey" and "might easily be improved." As for workmanship, he declares that the company deserve all praise, it being neat and finely finished. "It would be a good thing," he adds, "if our British manufacturers could only see their way to follow up our American cousins in fine workmanship."

The North British Rubber Co., the writer goes on, have two qualities, the first for boots, tennis, gossamer shoes, and goloshes. The second quality can be detected in canvas and common golosh shoes. At one time the company manufactured third-quality goods, known by the registered stamp "Antæus," but without the name of the company. Gradually these goods have been improved in quality until they have supplanted the former second-quality goods. The varnish satisfies the writer; "it can be handled with freedom when quite fresh; it is quite dry, and will not take up any dirt or dust; the surface of the shoe can be rubbed without destroying it. It has one slight fault,—it shows up a brown metallic luster when the shoe stands for any time."

The Liverpool Rubber Co., he says, are rising in the shoe trade. They put out a shoe of good quality, considering the

price. The varnish is "somewhat like the Boston, only it has a better body and dries in about six weeks, but it takes up the dust and dirt just the same, and cannot be touched to remove the dirt without destroying the surface of the shoe; but after it does dry it is not a bad varnish."

The National India Rubber Co. (Paris) are better known in Great Britain by the name of A. Hutchinson & Co. Their two factories, in Germany and France, produce about 5000 pairs of shoes per day. Their first quality is branded "Compagnie Nationale, Paris," with an eagle. The second quality bears the "Internationa" brand. Their varnish is something like the Liverpool company's.

The Harburg-Vienna Rubber Co., we are told, are of about forty years standing, having a factory in Harburg a/Elbe and another in Austria, with a combined daily output of 6000 to 7000 pairs of shoes. "In 1892 there was a ring formed among the rubber-shoe manufacturers; it included the North British, Liverpool, National and Harburg-Vienna rubber companies. This ring was supposed to uphold a fixed price for their shoes all round, the difference of quality being out of the question, but the promise of large orders, with small prices for poor qualities, proved too strong a temptation for the Germans to resist, so they broke their pledge with the other companies by selling at lower prices; this was found out, and it resulted in the splitting up of the ring in 1893." The efforts of the German company to revive the organization are detailed, and upon their failure the companies went on "cutting down at every point, and cutting down the prices means cutting down the quality." The Harburg-Vienna company "have two qualities of uppers and only one for soles; their stamp or brand for the English market is the 'Universal Overshoe, made in Germany [or in Austria]' for overshoes and goloshes, and the 'Universal Plimsoll, Made in Germany,' for canvas shoes. The overshoe has the better upper quality of the two. This company's right stamp is a shield crowned with a visor, and the letters 'V. G. F.' on the upper half of the shield. But still better, they adopt a stamp or brand for nearly every country; the oriental shoe, for instance, is stamped 'The Best American Overshoe,' without the words where made. The fact is, that this company tries every means in its power to imitate all English and American goods by adopting the stamp, but not the quality. They are then sent out to the various countries, where the people cherish the pleasant idea that they are buying English or American made goods, with the result that it gives the British or American manufacturer a bad name." Then comes an account of the sham soles in some of the shoes and a complaint of the "tackey" varnish. "As for workmanship, it is surprising how they can turn them out, considering the rubbish that the girls have to work with."

The Russian-American Rubber Co. (St. Petersburg) have had their shoes on the London market only about two years. The shoes are of splendid quality, but their style is "more adapted for the eastern empires." The varnish is equal to the best that the London writer has seen; "when shoes have to stand for any length of time, they do not show up the brown metallic reflection." The company make from 2000 to 3000

pairs of shoes per day. "This is one of the companies which use Pará, and yet they made 70 per cent. clear profit in 1893."

The writer admits that he has not mentioned all the companies in the field, but he does not close without a mention of the "Marvel" shoe. Both the writer and the editor of our contemporary invite anybody who may take exceptions to anything in the communication to have his say in print.

RUBBER-TIRED CARRIAGES IN NEW YORK.

THE use of rubber-tired carriages continues to make progress, although the leading manufacturers in New York city consider the field for their use limited. Outside of New York, however, there is no end of smaller cities whose people, determined to be up with the times, are having all kinds of vehicles equipped with rubber tires, so that it is impossible yet to determine what the end will be. First of all it must be understood that the pneumatic tire—which has become so popular for bicycles and trotting-sulkies—has not yet been adapted to other forms of vehicles, and that the conditions under which solid rubber tires are superior to steel tires are not widespread. When to this is added the consideration of the great cost of the rubber tires for carriages, and the frequent need of renewals, it will easily be seen why such tires are not likely soon to come into universal use.

The firm of Brewster & Co., at No. 1581 Broadway, New York, builders of some of the finest carriages in America, and numbering many wealthy people among their customers, have been experimenting with rubber tires for ten years past. Mr. Channing N. Britton, of this company, informed an INDIA RUBBER WORLD man that in 1868, when he went to Germany to learn the carriage-making trade, rubber tires were then used on some carriages made for the royal family. There is no patent on the idea of using rubber for carriage tires, and none on any particular form of tire, but only on the method of applying the tires. Such patents have been granted on devices originating in Great Britain, France, Germany, Russia, the United States, and perhaps in other countries. After trying them all, the Brewster company has accepted as the best that controlled by the Shrewsbury & Talbot Noiseless Tire and Cab Co. (Manchester, England), of which the Earl of Shrewsbury is the head. It has to do with the compression of the rubber and its application to the wheel. Messrs. Brewster & Co. are licensees for this patent in the United States, and through them the same system is in use by carriage-manufacturers in Boston, Philadelphia, and Chicago.

"We have put on thousands of sets of these tires," said Mr. Britton, "but we don't advise buyers to have their carriages equipped with rubber unless they are near one of our agencies. The danger of injuries is so great that dissatisfaction is almost certain to result, unless repairs can be conveniently made. Of course, if an out-of-town customer insists upon having rubber tires, we put them on. There is no rule as to the length of service of these tires, the amount of use varies so. They cannot come into general use outside of the large cities; on common roads they add at least 30 per cent. to the draft, which is severe on the horses. We have put pneumatic tires on one vehicle—for Mr. Peter Cooper Hewitt—but they have to be made so large that they are unsightly."

At the offices of J. B. Brewster & Co. (an entirely different firm), No. 489 Fifth avenue, a member of the firm said that there had been of late a decided increase in the use of rubber tires. They, too, advised against the investment of \$100 in a set of rubber tires, with the liability at any time of renewals be-

ing necessary, at a cost of \$60, except on street pavements such as those of New York. They could not see any advantage from using rubber tires in cities paved almost entirely with asphalt, as Cleveland and Washington. Their estimate of the number of rubber-tired carriages in New York and Brooklyn is 600.

Healey & Co., of No. 1654 Broadway, also manufacture fine carriages, and have equipped several broughams with rubber tires, under a French patent. Their estimate of the number of rubber-tired carriages in the city built by them was about 100.

The Rubber Tire Wheel Co., of Springfield, Ohio, have opened an office in New York at No. 1784 Broadway, where samples of their tires are on exhibition. They advertise to fit any vehicle wheel, old or new, with their steel channel and rubber tire. Their pamphlets contain testimonials from several citizens of Springfield who have found satisfaction lately in using rubber-tired vehicles, and evidently all of them do not confine their use to paved streets.

There is an occasional rubber-tired cab to be seen on the streets of New York, being for the most part owned by their drivers. A walk down Broadway past the principal cab-stands showed five such vehicles, made by Hinck & Johnson (Bridgeport, Conn.) and D. P. Nichols & Co. (New York), beside one imported cab.

"Why has not the rubber-tired cab proved as popular in New York as in London?" was asked of James Hefferman, superintendent of the New York Cab Co.

"Because cabs of any kind are not popular here as they are there," he replied. "Cab fares are high enough as they are, and they would have to be higher if all the wheels had rubber tires. Our streets would wear them out faster than the London pavements do. One of our patrons had rubber tires put on her brougham, which she kept at our stables, and the expense for one winter, including one renewal, was \$160. Now our vehicles are in much more frequent use, and you can get an idea from this what it would mean, in the way of cost to us, to introduce rubber tires. I hear that the Long Island railroad people have some rubber-tired cabs at their depot at Thirty-fourth street and East river, but I don't know how satisfactory they have proved."

ANALYSIS OF RUBBER COMPOUNDS.

MR. PERCY CARTER BELL, who makes a specialty of analytical and consulting chemistry in the rubber trade, has opened an office at 13 Ann street, New York. His specialty is the analysis of crude rubbers and rubber compounds of any description; in other words, if any manufacturer desires to match any rubber compound, by sending a sample to Mr. Bell he agrees to tell him its composition exactly.

THE garden-hose trade has been active during the season just closed. The general depression of business has had its effect in this direction, but the continual increase in the number of towns having waterworks leads to a steady enlargement of the area in which garden hose finds a sale.

BRIEF ABSTRACTS OF RECENT RUBBER PATENTS.

AMONG recent patents issued by the United States Patent Office, embodying applications of India-rubber or Gutta-percha to a greater or less extent, have been the following. It is not practicable here to do more than to note the use of rubber in each case, with sufficient detail to enable those who are interested to decide whether or not to look into any particular patent more fully:

TIRES.

No. 525,081.—Tire for Wheels. Robert M. Keating, Springfield, Mass.

The combination of a rim having annular recesses, with a tire-cover having ribs adapted to enter the recesses, and having integral therewith an arched portion extending from one of the ribs inwardly into the tire recess, the outer edge of such portion contacting with the outer edge of the tire cover, and an inflatable inner tube resting upon the arched portion.

No. 525,475.—Bicycle Tire. Elston R. Thatcher, Mechanicsville, assignor of one-half to C. E. Batdorf, Cedar County, Iowa.

In a bicycle, the combination of a rim having a slot, a guard tube having an opening coincident with the slot in the rim, an air-tube having an air-valve projecting through the opening of the guard-tube and through the slot in the rim, a clamping-band arranged between the guard tube and air tube and having its ends arranged at opposite sides of the air valve of the air tube and provided with lugs which also project through the opening in the guard tube and through the slot in the rim, and an elastic band arranged around the lugs and also around the air valve.

DRUGGISTS' SUNDRIES.

No. 524,958.—Atomizer. Asahel M. Shurtleff, Boston, Mass., assignor to Codman & Shurtleff, same place.

In an atomizer, a bottle, a cap or stopper therefor, a nozzle erected on the cap or stopper, and atomizing orifices contained in the nozzle, combined with a tongue depressor comprising a tongue holding portion, a supporting ring, a finger piece and a hook.

No. 525,174.—Syringe. Silas F. Yount, Chicago, Ill.

In combination, a syringe injecting tube, a drainage bulb of soft rubber fitting the shank of the tube and having an open mouth, a removable attaching piece, for a drainage tube, extending through one side of the bulb, an expansible and contractible dilator, provided with means for operating it, mounted inside the bulb upon the attaching piece and extending through the mouth of the bulb.

No. 525,370.—Stopper for Bottles, Jars, etc. John J. Varley, London, England.

A screw stopper for bottles, jars and the like having a cylindrical stem and having a number of similar grooves upon that part of the stem on which an elastic seating is placed, such grooves serving not only to hold the seating firmly to place, but also to hold it in a cylindrical form corresponding to that of the stem.

No. 525,570.—Bottle. Jonathan Walton, Brooklyn, N. Y.

A bottle formed in one piece with a cylindrical extension of the neck joined to the latter by a circumscribing portion of less thickness than the adjoining side walls, a cork in the neck of the bottle, a hard cylindrical protector of greater diameter than the interior of the neck of the bottle, and a rubber packing encircling the protector, which permits of the insertion of the protector into the extension and retains it therein above the cork in the neck of the bottle.

MECHANICAL GOODS.

No. 524,441.—Steam Packing. Henry W. Johns, New York, N. Y.

As a new article of manufacture for packing and like pur-

poses, a compound fabric, composed essentially of strands of soft metal, woven or laid up or otherwise laid up with strands of fibrous asbestos, the whole being treated during the process of manufacture with lubricating material, such as talc, plumbago and the like, and also with resin or other non-vulcanizable gums.

No. 524,795.—Anti-spattering Guard. Caleb Swayze, Toronto, Canada.

As a new article of manufacture, an anti-spattering guard, comprising a rubber concave disk having a slot running from the edge toward the center, whose inner extremity is round and expansible and adapted to fit around a faucet.

No. 524,851.—Elastic Washer. William Heiser, Buffalo, N. Y.

As an improved article of manufacture, an elastic compressible washer of the contour of a truncated cone having its bore provided with a screw thread and its body longitudinally slitted and its base provided with oppositely located recesses.

No. 525,478.—Lawn Sprinkler. Charles Widrig, Mount Clemens, Mich., assignor to Robert J. Farrar, Spencer J. Dalby, and John T. Kelley, same place.

In a lawn sprinkler, the combination with a standard having a lower pointed end, above which is formed an external base, a longitudinal bore formed in the tube and flared at its upper end and provided with a surrounding flange, of a flexible tube located in the bore and provided at its upper end with a choke band and at its lower end with a coupling.

DENTAL RUBBER.

No. 525,519.—Method of Making Dental Plates. Joseph Spyer, Mexico, Mexico.

The method herein described which consists in placing a slotted form plate upon the plaster model, making grooves in the model by passing an instrument around in the slots in the form or plate, filling the grooves so made with rubber, packing the case, with the form remaining on the model and uniting the plate and rubber filling.

No. 524,343.—Electrical Conductors. Edwin D. McCracken, Alpine, N. J., assignor to the Norwich Insulated Wire Company, Harrison, N. J.

An electrical conductor having a covering consisting of a strip or strips of paper, composed of pure vegetable fiber, applied in its unchanged fibrous condition, the paper forming of itself an insulating covering and having a suitable material coating and permeating it to render it practically anhydrous.

MISCELLANEOUS.

No. 525,086.—Elastic or Plastic Composition. Josef Pattigler, Vienna, Austria-Hungary, assignor to Alfred Ritter Von Pischhof, same place.

A composition, consisting of vegetable or mineral oil, caoutchouc, zinc-white, soluble glass, minium, asbestos and coloring matter.

No. 525,152.—Lacing Stud. Arthur Mathison, Springfield, Mass.

The eyelet or stud having a metallic head with elevations and depressions extending outward from near the post to the periphery of the metallic head, and a plastic cover extending over the metallic head and outside the periphery thereof, and filling the recesses under the elevated portions of the metal, the depressions in the metal being exposed.

No. 525,246.—Handle for Firearms. Joseph H. Wesson, Springfield, Mass.

A cheek piece for the handle of a firearm which consists of an outer layer of mother-of-pearl and an inner layer of India rubber, or analogous material.

No. 525,591.—Hammer Rail for Piano Actions. Robert H. Comstock, Ivoryton, Conn., assignor to the Comstock, Cheney & Company, same place.

The combination with a piano hammer rail, of a sheet metal shell applied thereto, an annular bushing entering the rail

through the shell and engaging with the same so as to hold it firmly against the rail, a buffer screw inserted into the rail through the bushing, and a rubber buffer mounted in the outer end of the screw.

No. 525,638.—Mill for Mixing Caoutchouc. Geo. Watkinson, Colechester, Conn.

The herein described mill for mixing caoutchouc, comprising two main rolls, arranged in the same horizontal plane, with a very narrow space between them, and geared to rotate toward

each other, and an auxiliary roll arranged below so as to catch the material falling between them, and so as to be in contact or substantially in contact with one roll, and to be separated by a narrow space from the other roll and to rotate in opposite direction from the first roll but toward the second roll and whereby the material falling between the rolls is caught by the auxiliary roll, by which it is pressed upward and ground into the mass of rubber revolving on the second roll.

TRADE AND PERSONAL NOTES.

PRESCOTT BROS., Cornhill, Boston, in addition to their rubber business have become the New England agents for the "Brightest and Best Heater," which is an oil heater for offices. It is having a large sale at the present time.

—Mr. Wheeler Cable, of the Cable Rubber Co. (Boston), has lately been granted a valuable patent in handling compounded rubber, a full description of which will appear in the next issue of THE INDIA RUBBER WORLD.

—Mr. M. S. Lawrence (Boston), who for more than seventeen years has been Mr. C. J. Bailey's right hand man, was the recipient recently of an elegant gold watch, a present from his employer.

—The Cable Rubber Co. (Boston), are to have a fine exhibit of carriage cloth at the carriage makers' convention to be held in Philadelphia, Oct. 17, 18 and 19.

—Mr. Wm. H. Corner, of the Boston Rubber Co., is still at Blue Ridge Summit, Pa., where he is convalescing. He has received hundreds of friendly letters and telegrams from the trade since he has been laid up, and many friends have made it in their way to visit him at his mountain retreat.

—F. B. Vandegrift & Co., custom-house brokers in New York, have sent us, with their compliments, a compact but well-printed "pocket edition" of the tariff bill which became a law in August, together with a schedule of 3000 articles with rate of duty and references to the paragraphs in the law relating to the same.

—J. T. Wing & Co., dealers in rubber goods and belting at Detroit, Mich., were damaged by fire in their store on September 23 (Sunday morning) about \$5000. The loss was fully covered by insurance.

—Suit has been brought by an employé of the Metropolitan Rubber Co. named William Wallace, at Wallingford, Conn., for \$5000 damages alleged to have resulted while he was engaged in making an excavation under one of the company's buildings.

—The Fred H. Wood Co., of Cleveland, Ohio, have incorporated for the manufacture of rubber ankle-boots for horses. The amount of capital mentioned is \$10,000.

—The auction sale of machinery at the rubber-comb factory of S. R. Brown, at Wappingers Falls, N. Y., on September 18, resulted in such low prices that much of the stock advertised was withdrawn. One good bid for a certain lot was received, however, and accepted.

—An editorial article in the Melrose (Mass.) *Journal* strongly urges upon the town authorities the propriety of building sidewalks on a new street leading to the Boston Rubber Shoe Co.'s factory, that corporation being referred to as making every year a handsome addition to the income of the town in the shape of \$6000 in taxes.

—It perhaps is not news to the general trade, but is interesting to recall the fact in connection with the article on Cornelius Callahan that Mr. W. H. Adams is sole agent for Mr. Callahan's products, his office being at 163 Devonshire street, Boston.

—A very neat card printed in Spanish comes to us from the Coronado Rubber Co., which would indicate that this progressive concern have dealings with our South American neighbors which is indeed the fact. Their mackintoshes and cravenette garments having become quite popular in that region.

—Under date of Sept. 20th, Mr. Francis H. Robinson writes that he has severed his connection with the New York Commercial Co., and Geo. A. Alden & Co., and resumed business as a crude rubber broker.

—The *Marblehead Messenger* is responsible for the statement that Howe's rubber store at Lynn, is one of the best outside of Boston, and further that they are having a large sale of ladies and gentlemen's mackintoshes.

—The American Rubber Co. are in receipt of a letter from John Boyd Thacher, chairman of the executive committee of awards of the World's Columbian Commission, which encloses an official copy of their award. The diploma covers mackintoshes, rubber boots and shoes, rubber clothing, and oil clothing. H. M. Marks, the individual judge of mackintoshes, testifies to the purity of material, durability and waterproof qualities employed in manufacturing the garments, superior style and finish, perfection in shape and ventilation and skillful workmanship, the seams being stitched, cemented and well-sewed. George Hutchinson, judge of rubber boots and shoes, approves of light-weight rubber boots and shoes for city wear as well-shaped, well-finished, and attractive, showing progress in form and general workmanship. John Frank, judge of rubber boots, commends the purity of rubber, durability, perfect style, close-fitting to the feet, and displaying skillful workmanship. Edwin P. Carpenter gives the rubber clothing award, noting the following specific points of excellence; thoroughly waterproof, superiority of workmanship, hence durability, purity of rubber, employment of best materials throughout, careful attention to every detail of manufacture, and in oil clothing mention is made of excellence of workmanship, non-adhesiveness, waterproof under all circumstances, superiority of materials, and construction. This, besides being signed by the individual judges, and the president of the departmental committee, bears the signature of John Boyd Thacher.

—The Boston Belting Co., who are regular exporters of mechanical rubber goods to Europe, recently shipped a good order to Russia, to the petroleum district, including valves and other articles specially designed for the peculiar requirements of buyers in the czar's dominions.

—Edward B. Hunt has been appointed receiver for the Cincinnati Rubber Co. They are said to have stores in several cities, the Cincinnati branch having been managed by Walter G. Parker. The assets of the Cincinnati house are estimated at \$12,500, and the liabilities at about double that amount.

—The taste for sports among rubber-men is not confined wholly to yachting and fishing. Mr. Chester J. Pike, of Boston, is the owner of "Wild Oats," a brown gelding, which captured first money in the 2:23 trotting class at Old Orchard lately.

—Bolivian rubber is especially sought for by some of the manufacturers in the United States, while others do not make it a point to ask for it. Among the firms who value it highly is the India Rubber Globe Co., whose purchases of Bolivian gum in September amounted to 30,000 pounds.

—The Brazilian states of Pará and Amazonas have practically completed arrangements for a subvention for twenty-five years for a submarine telegraph line between Pará and Manáos, with twelve intermediate stations. If this plan is carried out it is expected that the government of Amazonas will subsidize a line of steamers to Mediterranean ports.

—The Hamilton-Brown Shoe Co., of St. Louis, report that more rubber shoes have been sold in the South this season than ever before.

—There were about fifty delighted guests at the *musical* given at the summer residence of Mr. E. H. Cutler, at Wood's Holl, Mass., on the evening of September 22. Among them were the Secretary of War and Mrs. Lamont, Dr. Joseph D. Bryant, of New York, and Mrs. Bryant. The musical entertainment was provided by Miss Emma Thursby, Tom Karl, Mrs. Cutler, and others.

—"India-rubber tires for carriages" is the heading of an advertisement which appears daily on the first page of the *London Times*. It is the advertisement of the North British Rubber Co., from their London office (57 Moorgate street, E. C.), offering the "Clincher" tire, Bartlett's patent. A choice of pneumatic or solid tires is offered, for carriages and coupés. On the same page is the advertisement of a company in Britannia road whose rubber-tired coupés can be ordered through the district telegraph offices without any charge for the messenger service. A newspaper which comes to us from Ceylon contains the advertisement of a London carriage-manufacturer, with agencies in Bombay and Calcutta, offering patent rubber tires, described as "perfect for invalids."

—A journal called the *English Mechanic* is said to be entitled to be considered as the pioneer among bicycle papers. Long ago it discussed the merits of iron, rubber, leather, and wooden tires for the old-style velocipede. The rubber and leather tires were simply wrapped over the wooden rims and nailed to them, giving a tire about an inch in diameter, including the rim.

—The London directors of the Amazon Steam Navigation Co., Limited, through their manager in Pará, have made a handsome contribution toward the new orphan asylum in the latter city.

—The Boston Rubber Shoe Co. carry \$3,000,000 of fire insurance, but it is said that the first claim which they have made for a loss since 1881 was for \$56 for damage by fire to one of their tenement houses in Malden, last month.

—Z. T. Lindsey, a wholesale dealer in rubber goods at Omaha, has opened a house at St. Joseph, Mo., in charge of F. M. Smith.

—The death is reported, in London, on September 28, of Mr. S. S. Joseph, who for some twenty-five years was connected with the firm of Heilbut, Symons & Co. He retired from active business in 1892.

—The New York Commercial Co. and George A. Alden & Co. now have offices in London at 31 City Buildings, Old Hall street, and in Liverpool at 21 Mincing lane.

—Mr. Joseph Banigan made a contribution of \$500 to a fund for the relief of the sufferers from the forest fires in the northwest. The United States Rubber Co. contributed \$1000 to the fund.

—It is reported that the Hon. E. S. Converse will present to the city of Malden, Mass., in addition to his many other gifts to the public of that place, eleven acres of ground for park purposes.

—The trade heard with deep regret of the great bereavement of Mr. H. S. Randall, in the death at Lake Mahopac, N. Y., last month, of his third daughter, Grace, aged seventeen years. Mr. Randall has been connected with the Boston Rubber Shoe Co. for more than twenty-five years, being now manager of their New York office. The funeral was attended by some of the officials of the company from Boston.

—The works of the Huron Rubber Co., at Cleveland, Ohio, have been purchased by Doty & Herbert, No. 241 Greenwich street, New York. Mr. Eugene Herbert, formerly traveling member of the firm, is now located in Cleveland, in charge of the works. As an evidence of the improvement in trade during the past month Mr. Doty reports that, although the firm now have no travelers employed, a large number of out-of-town orders has been received.

—The Davol Rubber Co. (Providence) have by boring struck a plentiful supply of water and are now putting in the Pohlé Air Lift Pump, for raising and distributing it through their factory.

—The Middlesex Rubber Co. (Middletown, Conn.) are said to have a fine Balata shield which they intend soon to put upon the market.

—The report that Mr. C. M. Clapp is interested in the Providence Rubber Shoe Co. is proved to have no foundation whatever.

—Mr. Arthur Squires has accepted the superintendency of the Brooklyn Shield Co., Brooklyn, N. Y.

—The National Rubber Co. (Bristol, R. I.) are putting in several 60-inch mixing mills.

—The subject of a rubber trade club is being again agitated. A little later we hope to give something of interest concerning the suggestions and comments of those who are behind the movement.

—Mr. William B. Banigan, manager of the Marvel Rubber Co., who is an enthusiastic wheelman, is talked of as L. A. W. consul for the state of Rhode Island.

—Superintendent Gardner, of the Colchester Rubber Co., is overseeing the setting up of the new rubber machinery at the National Rubber Co., at Bristol, R. I.

CATAPULT AND CATAMOUNT.



THE FARMER — "It's blessed lucky for me that



—th' 'lastic in them suspenders is pow'ful strong."

—Judge.

HEARD AND SEEN IN THE TRADE.

THE first of September did not witness a general shut-down of mills, as was rumored extensively previous to that date. Some of the factories have given their employes a two weeks' vacation, while others are still running at full time. There has been a gradual advance in United States Rubber stocks, both preferred and common. Treasurer Charles R. Flint, when asked by a reporter whether this was due to any intention to declare a dividend on common, replied: "While it is a fact that our surplus earnings have amounted to over \$2,000,000, I do not believe that there will be a 5-per cent. dividend declared—certainly not now. At all events, I shall oppose, for the present at least, the declaration of a dividend of that figure." Vice-President Robert D. Evans said lately: "The earnings of the company compare very favorably with last year; the volume of business is largely in excess. It is too early to talk about a common-stock dividend, as dividends are declared in January and July. Last year the company earned 7 per cent. on the common stock and is earning it this year. We have certain economies in contemplation which should increase our net earnings \$750,000 a year.

A vast number of narrow-pointed toes have gone out of the rubber-shoe factories this fall, the manufacturers having found it useless to stand out against the changes in demand which follow the varying fashions in leather shoes. Mr. William Morse, the big jobber in Reade street, says that a year or two ago it was hard to get broad-toed rubbers fast enough for his customers. This year the American Rubber Co. alone (for which he is agent) spent \$20,000 for pointed-toed lasts, and the other companies have been spending a lot of money in the same way for lasts which next year's fashions may render useless.

More buyers have come to New York this season than for two years past, a fact noted in the rubber-shoe trade as well as in other branches. Stocks have been allowed to run low in every line, until the people are obliged to buy, and merchants must have goods. The growing tendency is for buyers for stores, large and small, to come to the cities to buy. The railroad accommodations now place New York in easy reach of every part of the country, and with the growing wealth of the country, people everywhere want goods of the latest styles and

the best makes—a demand which the merchant considers himself better able to fill by coming to the biggest trade centers.

The tariff legislation doesn't affect rubber shoes, but there is a tendency among New York merchants in general to talk less "politics." The signing of the new bill at Washington, therefore, did not bring out much comment, one way or the other. Treasurer Flint, of the United States Rubber Co., said: "The manufacture of rubber goods is an American industry and is not affected by the tariff. Crude rubber comes in free of duty. Canada imports 95 per cent. of the rubber shoes she uses from the United States, and we export and will of course, continue to export, goods to every country in the world."

Benjamin F. Elson (New York agent Boston Belting Co.)—Business in general promises an early improvement; in fact, it is much better already than it was two months ago. There are two reasons for this, the chief of which is that dealers have allowed their stocks to fall so low that now they are forced to buy. The passage of the tariff bill has also had its effect, in removing an unsettling element in trade. The business public made up its mind some time ago that if any bill were passed this summer it would be the Gorman bill, which involved so few changes from the McKinley law that very few branches of trade would be affected. The subject of the tariff, therefore, was practically disposed of before the final action by Congress.

"There has been a very handsome improvement in our trade since the tariff question was disposed of," said Mr. J. D. Vermeule, president of the Goodyear Rubber Manufacturing Co. "I don't mean that there is anything in the tariff changes to affect the rubber trade one way or the other, but it has helped business to get the matter out of the way, so that buyers can know just what to depend on. In our shoe department we have been working at our full capacity, without being able to keep up with the orders received. In the clothing line, dress-shields, gloves, hardware sundries, and sundries generally, we did a good business in September—a business which showed a real improvement, though in extent it was below the average for a few years past. There are some who think the recent buying is merely in the nature of a spurt, to be followed by further dullness, but I am more hopeful. Buyers have seemed to me to make their selections carefully, as if purchasing for an immediate demand.

REVIEW OF THE RUBBER MARKET.

CRUDE rubber continues to manifest a condition of firmness, for which perhaps sufficient reason will be found in delayed arrivals at Pará, coupled with increased activity among the manufacturers, although the claim is made in some quarters that a speculative movement is afloat to carry prices to a higher point than is justified by the legitimate conditions of trade. As to the latter claim there is a lack of unanimity as to who is responsible for the movement. On the other hand it is pointed out that present prices, though marking an advance upon prevailing quotations for some time past, are not high, it being considered among consumers that fine Pará below 70 cents is cheap rubber. There is no indication of reduced production in the Amazon valley; indeed it is too early in the crop year to estimate satisfactorily what the output will be, and by those who dispute the idea that a speculative movement is at the bottom of the advance in prices, it is urged that this is not the season for attempting to control the market by speculative attempts. Receipts at Pará are reported lighter, however, which may be due alone to the unfavorable conditions of the rivers just now for transportation.

The condition among manufacturers continues to be one of light stocks, their purchases of crude material being limited to present actual necessities. It is urged with regard to the highest quotations made that they represent isolated transactions, made under circumstances not affecting the trade as a whole, and that perhaps they are not fairly representative of the market.

The above remarks relate particularly to Pará grades, but the condition of firmness is also apparent in the market for Africans and Centrals, holders not being disposed to make concessions in any case, in the hope that a more active demand will soon be developed among the manufacturers.

In regard to the financial situation Messrs. Simpson and Beers, brokers in crude India-rubber and commercial paper in New York, advise us as follows:

"The noticeable feature during September has been the scarcity of all kinds of rubber paper. Prime receivables are readily saleable at 4 @ 4½ per cent., and prime single-name notes at 5½ @ 6 per cent., with three to six months maturity. City and out of town banks are buyers of desirable paper."

PRICES FOR SEPTEMBER (ISLAND RUBBER).

	1894.		1893.		1892.	
	Fine.	Coarse.	Fine.	Coarse.	Fine.	Coarse.
First	67	45	66	43	63	42
Highest	68	46	70	49	67	45
Lowest	66	44	66	43	63	42
Last	68	46	70	49	67	45

The latest quotations in the New York market are:

Pará, fine, new t a....	68@70	Sierra Leone.....	20@38
Pará, fine, old.....	72@74	Benguela.....	47@48
Pará, coarse, new t a..	46@56	Kongo Ball.....	37@40
Pará, coarse, old.....		Cameroon Ball.....	34@36
Caucho (Peruvian) strip	43@44	Flake, Ord. and Lump....	24@25
Caucho (Peruvian) ball.	47@48	Accra Flake.....	14@15
Mangabeira, sheet.....	35@38	Liberian Flake.....	21
Esmeralda, sausage....	47@48	Primest Pinky Madr.....	59@61
Guayaquil, strip.....	27@33	Madagascar, black.....	42
Nicaragua, scrap.....	45@47	Borneo.....	26@40
Nicaragua, sheet.....	43@44	Gutta-percha, fine grade..	1.30
Thimbles.....	35@36	Gutta-percha, medium....	1.00
Tongues.....	30@35	Gutta-percha, hard white.	85

The statistical position of Pará rubber in New York and elsewhere is as follows, the figures expressing tons:

	Fine and medium.	Coarse.	Total.
Stock, August 31, 1894.....	946	46	992
Arrivals, September.....	472	134	606
Aggregating	1418	180	1598
Deliveries, September.....	498	136	634
Stock, September 30.....	920	44	964
Stock in England, September 30.....			755
Deliveries in England, September.....			490
Pará receipts, September.....			1300
Stock in Pará, September 30.....			330
World's supply, September 30.....			3045
[Excluding caucho.]			

AFRICAN RUBBER IN ENGLAND.

THE market for medium grades in Europe holds firm. Some grades have advanced owing to scarcity; other grades are unchanged. We note the following sales during September: 70 tons Benguela Niggers at $1/9\frac{1}{2}$ @ $1/11$; 50 tons Thimbles at $1/4\frac{3}{4}$ @ $1/5$; 16 tons Batanga Ball at $1/4\frac{1}{4}$ @ $1/4\frac{3}{4}$; 15 tons Rangoon at $1/6$; 12 tons Mozambique Ball at $1/10\frac{3}{4}$ @ $1/11$. To-day's quotations are as follows:

Accra Buttons.....	$1/10\frac{1}{2}$
Addah Niggers.....	$1/8\frac{3}{4}$
Benguela Niggers.....	$1/11$
Cameroon Clusters.....	$1/5\frac{1}{2}$ @ $1/8$
Cameroon K. B. and B. G.	$1/4\frac{3}{4}$
Gaboon Lump.....	$11\frac{1}{2}$
Gaboon Flake.....	$11d$
Liberian.....	$12d$
Old Calabar.....	$1/2$
Rangoon.....	$1/6$
Sierra Leone Niggers.....	$1/5$
Thimbles.....	$1/5$
Madagascar, pinky.....	$2/4\frac{1}{2}$
Madagascar, black.....	$1/8\frac{1}{2}$
Mozambique Ball, prime.....	$2/2\frac{1}{4}$

In addition to the sales noted above, about 80 tons fine Pará have been sold for shipment to America at prices ranging from $2/10\frac{1}{2}$ for new, to $2/11\frac{1}{2}$ for old.

THE RUBBER SITUATION IN PARA.

THE demand has remained very steady and satisfactory since our last advices but as currency prices had to adapt themselves to the fluctuations of exchange, which have been most remarkable, a great change has taken place in this respect. With an advance of about 18 per cent. on exchange the

prices of rubber gradually dropped here about 10,000 per kilogram, and as the former does not appear to be exhausted, a further reduction may be expected. So sudden and considerable a change somewhat upset business and might have been most inconvenient had supplies been on a larger scale. Most of the rivers being unusually low it may be surmised that supplies will not come in very abundantly just at present. They will, however, only be delayed, so that any temporary shorts should not be taken as forebodings for a small crop.

The last transaction of any importance took place at $4/450$ for fine Island rubber and at $5/100$ for fine Upriver with the established difference for coarse of $2/350$ and $1/850$ for the two kinds respectively. At the close, however, prices must be quoted nominally lower on account of the rising exchange.

The receipts this crop dating from July 1 amount to 2567 tons, as against 2900 tons for the same period last year. The clearing quotations are:

Pará fine, $2/6\frac{1}{4}$	} Sterling per pound, English, f. o. b., not including shrinkage, freight, and insurance.
Pará coarse, $1/5\frac{1}{2}$	
Upriver fine, $2/8\frac{1}{4}$	
Upriver coarse, $1/9\frac{3}{4}$	

After a very rapid advance the rate of exchange closes nominally at $12\frac{1}{2}d$. What a disturbing effect such a movement must have on trade in general need not be pointed out, particularly as it is generally traced back to speculative temporary motives.

R. F. SEARS & CO.

Pará, Brazil, September 19, 1894.

IMPORTS FROM PARA.

THE imports in detail of rubber direct from Pará at the port of New York, since our last report, have been as follows, expressed in pounds:

September 21.—By the steamer *Chinese Prince*, from Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Reimers & Meyer.....	56,700	48,900	60,600	.....	166,200

September 22.—By the steamer *Amazonense*, from Pará:

New York Commercial Co.	207,800	24,200	52,800	6,000	290,800
Reimers & Meyer	96,700	7,800	17,400	18,800	140,700
Joseph Banigan.....	21,400	5,000	57,000	11,000	94,400
Lawrence, Johnson & Co..	45,700	4,300	44,400	.....	94,400
P. Lima.....	2,500	.....	1,500	.....	4,000
Shipton Green.....	.....	.....	.....	11,100	11,100
Total	374,100	41,300	173,100	46,900	635,400

September 23.—By the steamer *Hildebrand*, from Manáos and Pará:

Reimers & Meyer.....	61,900	9,200	30,400	.....	101,500
New York Commercial Co.	40,100	2,500	5,000	.....	47,600
Joseph Banigan.....	32,800	2,800	12,100	.....	47,700
Boston Rubber Shoe Co..	32,800	2,800	.....	.....	35,600
Lawrence, Johnson & Co..	9,300	2,500	3,400	.....	15,200
Shipton Green.....	8,200	700	1,200	.....	10,100
George G. Cowe.....	4,200	300	700	.....	5,200
Herbst Bros.....	6,500	.....	3,500	.....	10,000
G. Amsinck & Co.....	300	.....	300	200	800
Total	196,100	20,800	56,600	200	273,700

October 3.—By the steamer *Paraense*, from Pará:

New York Commercial Co.	65,300	13,100	46,200	8,900	135,500
Reimers & Meyer.....	42,800	35,000	49,200	.....	127,000
Lawrence Johnson & Co..	27,400	5,500	17,300	.....	50,200
Total	135,500	53,600	112,700	8,900	310,700

September Imports from Pará.....	1,386,000
August Imports.....	964,500
July Imports.....	645,300
June Imports.....	1,591,300
May Imports.....	926,300
April Imports.....	2,566,868
March Imports.....	2,177,400
February Imports.....	2,309,402
January Imports.....	3,750,000

OTHER PARA ARRIVALS.

September 6.—By the steamer <i>La Bretagne</i> , from Havre :	
Reimers & Meyer (Caicho)	7,000
September 6.—By the steamer <i>Lucania</i> , from Liverpool :	
George A. Alden & Co.	44,200
September 6.—By the steamer <i>Nomadie</i> , from Liverpool :	
William Wright & Co.	25,180

September 21.—By the steamer <i>Campania</i> , from Liverpool :	
Reimers & Meyer	12,947
September 21.—By the steamer <i>Servia</i> , from Liverpool :	
George A. Alden & Co.	122,000
September 26.—By the steamer <i>Britannic</i> , from Liverpool :	
O. G. Mayer & Co.	16,900
September 26.—By the steamer <i>Cevic</i> , from Liverpool :	
O. G. Mayer & Co.	25,400
Total Para imports via Europe	253,627

OTHER NEW YORK ARRIVALS.

BELOW will be found in detail the imports at New York, during September, 1894, of India-rubber from Mexico, Central America, and South America, other than Para grades; also, arrivals at New York of African and East Indian sorts :

CENTRALS.

	POUNDS.
SEPT. 2.—By the <i>Finance</i> =Aspinwall:	
A. Santos & Co.	8,376
W. Louiza & Co.	2,600
J. Aparicio & Co.	5,496
W. R. Grace & Co.	8,124
Landman & Kemp	813
C. R. Flint & Co.	604
G. Amsinck & Co.	4,654
H. Marquardt	160
Munoz & Espriella	5,082
Roldan & Van Sickle	1,668
Bock & Co.	1,216
Dumarest & Co.	1,443
Piza, Nephews & Co.	2,193
I. Brandon & Co.	2,373
J. M. Ceballos & Co.	3,600
Total	48,302
SEPT. 8.—By the <i>Bela</i> =Bahia:	
Reimers & Meyer (Pernambuco)	7,500
SEPT. 8.—By the <i>Czarina</i> =Nicaragua:	
Andreas & Co.	6,700
G. Amsinck & Co.	3,300
Eggers & Heinlein	1,450
Gerardo Canton	600
K. Mandell	450
Munoz & Espriella	450
To Order	450
Total	13,300
SEPT. 10.—By the <i>Orizaba</i> =Mexican ports:	
H. Marquardt	2,200
H. A. Forrest & Co.	100
Total	2,300
SEPT. 10.—By the <i>Coleridge</i> =Pernambuco:	
Reimers & Meyer (Pernambuco)	4,300
SEPT. 9.—By the <i>Carib</i> =Truxillo:	
Eggers & Heinlein	1,450
J. Agostini	500
A. S. Lascelles & Co.	200
H. W. Peabody & Co.	100
Total	2,250
SEPT. 11.—By the <i>Adirondack</i> =Cartagena:	
Punderford	1,000
J. Ferro	200
Ellinger Brothers (Nicaragua)	700
To Order	3,400
Total	6,000
SEPT. 12.—By the <i>Alliance</i> =Aspinwall:	
New York Commercial Co.	11,700
G. Amsinck & Co. (Guayaquil)	2,300
Roldan & Van Sickle	5,236
A. Santos & Co.	2,800
C. R. Flint & Co.	4,300
Bock & Co.	454
Total	26,690
SEPT. 11.—By the <i>Hudson</i> =New Orleans:	
W. R. Grace & Co. (Nicaragua)	12,500
Earle Brothers (Nicaragua)	2,900
Total	15,400
SEPT. 12.—By the <i>El Sol</i> =New Orleans:	
Earle Brothers (Nicaragua)	2,500

SEPT. 16.—By the <i>Tumuri</i> =Mexican ports:	
H. Marquardt	500
J. Agostini	200
F. Probst & Co.	200
Total	900
SEPT. 19.—By the <i>Vigilancia</i> =Tampico:	
J. W. Wilson & Co.	200
SEPT. 21.—By the <i>Colombia</i> =Aspinwall:	
W. R. Grace & Co.	175
R. F. Cornwall	3,167
Andreas & Co.	2,300
Ellinger Bros.	90
F. Probst & Co.	324
J. M. Ceballos & Co.	4,076
C. R. Flint & Co.	4,819
Munoz & Espriella	865
Landman & Kemp	1,060
F. J. Meyer	213
J. Aparicio	1,200
G. Amsinck & Co.	300
W. Louiza & Co.	490
Total	19,048
SEPT. 22.—By the <i>Amazonense</i> =Para:	
G. Amsinck & Co. (Pernambuco)	2,900
SEPT. 22.—By the <i>Advance</i> =Aspinwall:	
W. R. Grace & Co.	10,001
A. Santos & Co.	11,876
Piza, Nephews & Co.	1,844
Roldan & Van Sickle	628
Munoz & Espriella	1,713
Bock & Co.	1,402
G. Amsinck & Co.	4,827
J. M. Ceballos & Co.	11,504
C. R. Flint & Co.	5,900
I. Brandon & Co.	4,605
Total	51,545
SEPT. 23.—By the <i>Seneca</i> =Mexican ports:	
Louis Monjo & Co. (Tuxpan)	700
Graham, Hinkley & Co. (Tuxpan)	500
H. A. Forrest & Co.	200
C. Viadero	200
Total	1,600
SEPT. 25.—By the <i>Atene</i> =Cartagena:	
D. A. delima & Co.	3,800
W. R. Grace & Co.	3,400
C. R. Flint & Co.	1,400
J. Ferro	300
A. N. Rotholz (Nicaragua)	400
Total	9,000
SEPT. 25.—By the <i>New Orleans</i> =New Orleans:	
Crossman (Nicaragua)	8,500
SEPT. 26.—By the <i>Caxton</i> =Bahia:	
Reimers & Meyer	16,000
SEPT. 28.—By the <i>Honduras</i> =Flamboyant:	
O. G. Mayer & Co. (Nicaragua)	1,600
W. R. Grace & Co. (Nicaragua)	150
A. S. Lascelles (Nicaragua)	100
For Antwerp	100
Total	1,950
Total Centrals for September	243,535
Total for August	294,342
Total for July	176,747
Total for June	212,186
Total for May	174,905

BALATA.

	POUNDS.
SEPT. 16.—By the <i>Prins Mauritz</i> =Surinam:	
To Order (From Arthur Deyo)	100
SEPT. 25.—By the <i>Carib Prince</i> =Port Spain:	
Stockbridge & Co.	1,000

AFRICANS.

	POUNDS.
SEPT. 6.—By the <i>Paris</i> =London:	
Reimers & Meyer	8,200
SEPT. 6.—By the <i>Scandia</i> =Hamburg:	
Reimers & Meyer	2,000
H. Marquardt	3,000
George A. Alden & Co.	28,434
SEPT. 6.—By the <i>Sorrento</i> =Antwerp:	
George A. Alden & Co.	9,388
SEPT. 13.—By the <i>Friesland</i> =Antwerp:	
George A. Alden & Co.	1,000
SEPT. 13.—By the <i>Etruria</i> =Liverpool:	
Reimers & Meyer	17,984
SEPT. 13.—By the <i>Persia</i> =Hamburg:	
Reimers & Meyer	6,300
George A. Alden & Co.	22,800
SEPT. 13.—By the <i>Massachusetts</i> =London:	
Reimers & Meyer	2,200
SEPT. 13.—By the <i>Neckar</i> =Genoa:	
George A. Alden & Co.	4,500
SEPT. 21.—By the <i>Russia</i> =Hamburg:	
Reimers & Meyer	4,300
SEPT. 26.—By the <i>Dania</i> =Hamburg:	
Reimers & Meyer	18,600
SEPT. 26.—By the <i>Umbria</i> =Liverpool:	
George A. Alden & Co.	20,000
SEPT. 26.—By the <i>Cevic</i> =Liverpool:	
H. H. Smythe	9,000
George A. Alden & Co.	8,200
Total Africans	161,096
Total Africans for August	216,544
Total Africans for July	269,752
Total Africans for June	324,008
Total Africans for May	363,037

EAST INDIAN.

	POUNDS.
SEPT. 6.—By the <i>England</i> =London:	
George A. Alden & Co.	6,400
SEPT. 6.—By the <i>Paris</i> =London:	
Reimers & Meyer	16,900
George A. Alden & Co.	2,500
SEPT. 13.—By the <i>Berlin</i> =London:	
W. A. Brown & Co.	2,700
Reimers & Meyer	28,600
SEPT. 19.—By the <i>Borderer</i> =Liverpool:	
Reimers & Meyer	12,000
SEPT. 21.—By the <i>Alceto</i> =London:	
George A. Alden & Co.	9,200
SEPT. 21.—By the <i>Furnessia</i> =Glasgow:	
Reimers & Meyer	3,000
SEPT. 26.—By the <i>St. Giles</i> =Singapore:	
R. Soltan	17,000
Windmuller, Roelker & Co.	20,400
SEPT. 26.—By the <i>Mohawk</i> =London:	
Reimers & Meyer	5,184
George A. Alden & Co.	2,220
Total East Indian	123,104
Total East Indian for August	72,167
Total East Indian for July	218,731
Total East Indian for June	51,121
Total East Indian for May	68,596

BOSTON ARRIVALS.

	POUNDS.
SEPT. 6.—By the <i>Cephalonia</i> =Liverpool:	
George A. Alden & Co., Africans	810
SEPT. 12.—By the <i>Vigilant</i> =Liverpool:	
Reimers & Meyer, Africans	22,000
SEPT. 20.—By the <i>Borderer</i> =London:	
Reimers & Meyer, Africans	22,000
SEPT. 28.—By the <i>Polaris</i> =London:	
George A. Alden & Co., Africans	3,950
Total for Boston	48,460
Total for August	106,200
Total for July	58,000
Total for June	20,500
Total for May	21,280

NEW ORLEANS.

	POUNDS.	VALUE.
SEPTEMBER.		
From Nicaragua	34,094	\$11,320

